

The Connection Between Education and Personal Wellness

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Abstract

Personal wellness is a comprehensive way of life that emphasizes achieving one's highest degree of health in all spheres of one's life, including physical, mental, emotional, social, environmental, financial, and occupational health. In fact, current studies appear to indicate that many of the individual elements of personal wellness have transgenerational consequences. It is likely that many of these effects will be irreversible, which emphasizes the significance of promoting personal wellness from a young age. Clients, relatives, friends, neighbors, coworkers, and others may all gain from a person's individual wellness, which supports a healthy society. On the other hand, education equips people with the necessary knowledge to enjoy healthy and fulfilling lives. The improvement of mental health, which makes up around 7% of the worldwide disease burden and 19% of all disability years, is one way that education adds to a person's well-being. The growth of financial literacy and personal wellness are also correlated through education. Both age-related cognitive decline and cognitive performance are delayed by education. This gave rise to "cognitive reserve" (CR) theory, which contends that those with greater reserves are more resilient to the effects of aging, age-related cognitive decline, environmental assaults, etc., on the brain. As health disparities widen globally and individuals with less education face physical and financial challenges, their quality of life is negatively impacted. Research and policy have a great deal of potential to improve the situation and the health and well-being of the populace because education has historically been a neglected social intervention and a crucial factor in defining health.

Keywords: Personal wellness; Physical; Mental; Emotional; Social; Environmental

Introduction

A robust and cohesive society is facilitated by personal wellness

Personal wellness is a holistic way of living that focuses on a person's optimum level of health in many areas, including their physical, mental, emotional, social, environmental, financial, and occupational health [1-3]. This increases the likelihood that the person will live a longer, healthier life free from disease and will also result in significant financial savings on healthcare expenses [4,5]. In fact, a growing body of research suggests that people who practice wellness have lower levels of overall stress, a better sleep-wake cycle, improved physical and mental energy, robust professional development and high levels of self-esteem and social connectedness [6,7] The fact that the various aspects of personal wellness are interconnected is significant because it means that ignoring one dimension of personal wellness may also have an impact on another [1,8,9].

Hence, in order to be successful, a personal health program must pay equal importance to each of these elements. Furthermore, current studies appear to indicate that many of the individual elements of personal wellness have transgenerational consequences [10,11]. It is likely that many of these effects will be irreversible, which emphasizes the significance of promoting personal wellness from a young age. Additionally, focusing on personal wellness has advantages that go far beyond what is best for the individual themselves. Clients, family,

neighbors, friends, coworkers, and others may all benefit, which contributes to a healthy society [12,13]. Intriguingly, personal wellness has taken center stage in the modern workplace because employee health and happiness, which affects key aspects of the company like morale and productivity, employee engagement and satisfaction, quality and quantity of output, communication and collaboration, etc., are becoming more and more important for business success [14,15]. In this perspective, it is important to note that the COVID-19 epidemic has increased pressures for most working professionals, particularly for public health workers, having a significant negative impact on personal wellness [16]. As a result, it is crucial to understand and value personal wellbeing as one of the essential elements of pandemic preparedness.

The potential association between education with personal wellness

A solid education is, to put it simply, the cornerstone of health and happiness [17,18]. By preventing illness and disease, education equips people with the necessary knowledge to enjoy healthy and fulfilling lives. Additionally, children and adolescents must be properly fed in order to study and grow intellectually. Statistics from UNESCO's (The United Nations Educational, Scientific and Cultural Organization) Global Education Monitoring Report strongly imply that mothers who have higher levels of education improve their children's overall nutrition and immunization status while lowering preventable infant deaths, maternal mortality, and life-threatening infections like HIV (human immunodeficiency virus) [19,20]. Importantly, the 2015 Incheon Declaration reaffirms the importance of education in the development of skill sets, values, and attitudes that enable members of society to live full, healthy lives, make educated decisions, and address regional and global concerns [21]. That being said, the connections between education and personal wellness, however, seem to be more nuanced. In order to demonstrate a cause-and-effect relationship between education and personal wellbeing, it is needed to carefully consider the many benefits of learning and education that encompass a wide range of areas of individual benefits by affecting many crucial dimensions of personal wellness.

People with higher educational levels typically have better jobs with health benefits, higher incomes, and resources to buy healthy foods. They also tend to experience less stress because they avoid prolonged social and economic hardship, which helps them develop increased social and psychological skills like diligence, perseverance, and the capacity to form social networks that increase healthy behaviors and self-regulation, as well as proximity to healthier neighborhoods [22,23]. However, the cause-and-effect link between education and health is compounded by the fact that poor physical and mental health has a negative impact on education through a process known as reverse causality [24-26]. In this context, it is important to emphasize that childhood is a time when personal wellness becomes extremely important because health and educational trajectories are primarily governed by a nurturing home environment along with quality education, which can foster the ensuing development of social skills, resilience, adaptive, and emotional regulation, as well as learning skills in the adulthood,

suggesting the nexus between education and health to be extremely important [27].

Studies linking education to personal wellness

At the end of working life, cognitive performance, a crucial component of personal wellness was investigated in a study conducted in Europe. In order to investigate the relationship between education and cognitive ability later in life, the researchers recorded the exogenous variance in years of schooling resulting from compulsory schooling changes enacted in six European countries throughout the 1950s and 1960s [28]. They evaluated the causal relationship between schooling and memory, fluency, and numeracy, as well as effects on cognitive decline, using data from the Survey of Health, Ageing and Retirement in Europe (SHARE). They found that, in addition to the protective effect of education on cognitive decline in terms of verbal fluency, one more year of schooling enhanced the memory score around four decades later by about 0.2, which equal to 10% of a standard deviation. The study is constrained, however, by the fact that a variety of unobserved factors or confounders that affect cognitive outcomes, such as the effects of socioeconomic factors in the home environment on education as suggested by Nisbett and others, are difficult to rule out and may have an impact on education [29,30]. As a result, more reflection and evidence-based research are needed before we can tease apart education as the key factor influencing cognitive performance later in life, among other factors.

In another study, Fletcher and colleagues employed extensive sibling comparison in the UK Biobank to control familial history in order to discover a potential relationship between school success and later-life cognition. By adjusting for the polygenic score, which measures the genetically caused disease, they also looked at genetic confounding. After accounting for them, they were able to identify both sizable confounding and sizable residual relationships between schooling and cognition in later life [31]. According to estimates from the Center on Society and Health's Education and Health Initiative, USA, adults who elected not to finish high school had a 15% prevalence of diabetes in the United States in 2011, which was 2-fold greater than that of college graduates. In comparison to people with a college degree, who smoked only 8% of the time, more than one-fourth of adults without a high school diploma smoked [32]. Also, according to this report, persons who drop out of high school can anticipate having nine less years of life expectancy than their contemporaries who have completed college.

In addition, Hahn et al. [33] developed a model that evaluates the three main pathways connecting education and health outcomes in adulthood and takes into account a variety of educational aspects, including knowledge, problem-solving abilities, emotional awareness and self-regulation, cooperative skills, and others [33,34]. The first pathway conducts a critical analysis of the psychosocial environment, taking into account factors such as the person's sense of self-control and self-management. The second focuses mostly on the person's professional life, which can lead to happiness and money and make it simple to access a variety of resources for health. Last but not least, good conduct can guard against unwelcome health risks and help people use the healthcare

system wisely [35]. The approach views education as the key social factor influencing health and wellbeing as a whole.

Education ties to personal wellness via improving mental health

7 percent of the world's disease burden and 19 percent of all disability years are related to mental health, an important component of personal wellness [36]. Additionally, it has a significant role in a number of socioeconomic consequences, including premature death, a shorter life expectancy, and a higher risk of contracting both communicable and non-communicable diseases-related physical problems [37]. Economic consequences show that those with poor mental health are less productive at work, more likely to be unemployed, and earn less money. Due to a wide range of factors, the prevalence of poor mental health has increased in low- and middle-income nations [38]. Kondiroli and Sunder [24] examined the possibility of a causal relationship between education and mental health in a landmark study [39]. They employed the exogenous change in the educational environment brought on by a policy intervention in Zimbabwe to address this important question. This reform was successful in enhancing educational achievements for the target demographic and addressed considerable educational barriers that Black schoolchildren had experienced in Zimbabwe over the years. Importantly, researchers used age-specific exposure to a 1980s educational reform in Zimbabwe as an instrumental variable (IV) for years of education to more accurately quantify the causal relationship between education and later-life mental health. They found that an extra year of education decreased the likelihood of reporting any symptoms linked to depression (11.3%) and anxiety (9.8%) by using data from nationally representative surveys and IV-2SLS (Two-Stage least squares) regression analysis. Furthermore, higher levels of education had a less impact on the severity of symptoms linked to both anxiety and depression (6.1% and 5.6%, respectively). Descriptively, education helps people overcome adversity to protect their mental health and gives them the knowledge and confidence to seek help for early intervention.

Education ties financial competence development to personal wellness

Last but not least, one of the important aspects of personal wellness is financial literacy and/or competence, which are also influenced by educational level [40-42]. This dimension primarily focuses on managing resources to live wisely, making informed financial decisions and investments, setting realistic financial goals, and strategic planning for short- and long-term needs or emergency funds based on individual's financial values, personal needs and unique circumstances. Importantly, there is a reverse causal relationship between financial literacy and significant improvements in health [43]. For instance, a study conducted in the USA examined the effects of a financial counseling and education program on the health of low-income single moms in Omaha, Nebraska. The participants were divided into two groups: those who finished a nine-week course on financial achievement and those who had no intervention. White and her coworkers measured the participants' health indicators, such as blood pressure, cholesterol levels, weight, and reported quality of life, in addition

to only the financial ones. According to the study, participants who finished the financial literacy course exhibited a variety of healthier behaviors compared to those who did not. In addition to a 5% decrease in cigarette use and, most crucially, a notable decrease in the avoidance of necessary medical care owing to cost, this study also found significant decreases in financial stress, which can further enhance participants' mental health. Collectively, the case studies [44-46] show how important aspects of personal wellness are interconnected with different social interventions, such as the promotion of education, health, and financial literacy among the poor, which justifies their inclusion and coexistence in a comprehensive social program.

The underlying processes that link education to good cognitive health

Education has been shown to improve cognitive performance and delay age-related cognitive decline, but the fundamental mechanisms underlying these effects are still poorly understood [47,48]. However, a lot of neuroscientists have advanced the Cognitive "Reserve" (CR) theory, which contends that those with higher reserves are better able to tolerate the effects of aging, linked neurodegenerative disorders, age-related cognitive decline, and environmental assaults to the brain [49,50]. Reserve often refers to lifelong exposure to intellectually stimulating experiences. As a result, educational and occupational attainment is frequently utilized as proxies or enhancers for cognitive reserve. The epidemiological data seem to support the CR hypothesis, which states that people with higher educational attainment have a lower risk of dementia and cognitive decline than people with lower educational attainment. Importantly, Roe and colleagues observed that a cohort of highly educated older adults with clinically established Alzheimer's Disease (AD) showed no dementia in their lives, in contrast to the low-educational group [51]. It offers a fresh viewpoint on the non-pharmaceutical therapy of age-related cognitive decline through social intervention. In addition, the CR theory contends that engaging in a lot of leisure activities in later life might significantly postpone the start of brain aging. It is possible that the quality of leisure activities acquired through educational achievement can be a crucial enabler of CR because education is a lifestyle indicator and partially determines personal wellness [52,53]. Numerous research has looked at the neurological aspects of education's protective effects against cognitive decline, and they seem to indicate that these effects may include improvements in gray matter volume and white matter integrity as seen by MRI indexes in later age [54,55].

Another study looked at 110 non-demented older individuals at high sociodemographic risk for cognitive and functional losses to determine the link between educational attainment and structural volume and shape morphometry of the bilateral hippocampi and amygdalae [56]. According to the research, education may have a direct or indirect impact on brain reserve in areas like the hippocampus and amygdala that are particularly vulnerable to the neuropathological alterations brought on by aging, dementia, and specifically, AD. Intriguingly, the amygdala region of the brain also regulates emotions, including social connection, and supports

general wellbeing [57,58]. Moreover, it has been demonstrated that hippocampal atrophy is a reliable indicator of future cognitive impairment and precedes clinical symptoms [59]. Additionally, learning results in the development of new connections between neurons, or neuroplasticity, which enhances synaptic processes in the brain [60]. It is generally accepted that the stronger the neural connections are, the more they influence the occupational and environmental aspects of an individual's wellness, including that of others, and ultimately contribute to better health and wellbeing [61,62]. Furthermore, more anterior-posterior brain region co-activity has been linked in several recent research to improved brain functioning outcomes as measured by functional magnetic resonance imaging (fMRI) techniques [63,64]. It is possible that functional connectivity from a posterior medial region of the brain to an anterior medial region of the brain would have a strong impact on financial literacy in older adults because financial literacy has been associated with better brain functioning indicators, and education may play a direct or indirect role in this financial outcome [65].

Conclusion

To sum up and draw a conclusion, given the growing importance of education in promoting personal wellness, it is crucial from a policy perspective to investigate whether improving educational processes and content, such as lengthening compulsory schooling at younger ages, will have a significant impact on population health. This will also reaffirm the causal link between education and personal wellness. Health disparities are growing globally, and less educated individuals are suffering from economic and physical hardships, which significantly lowers their quality of life. Moreover, a recent article relating educational attainment to longevity was published as this was being written. According to this research by Princeton University economists Anne Case and Angus Deaton, Americans with college degrees live far longer than those without one. According to their most recent data, there is a significant and widening divide between individuals in America who have college degrees and those who do not. Americans without a four-year college degree, who make up approximately two-thirds of the adult population, were projected to live ten years shorter on average in 2021 at age 25 than those who do [66].

Since education has been a neglected social intervention and a key determinant of health up until now, research and policy have a great potential to change things and enhance the health and well-being of the population [67]. More than 80% of students worldwide have been affected by school closures as a result of the COVID-19 pandemic, causing an unprecedented global disruption to primary, secondary, and tertiary education; the latter being the most important indicator influencing healthcare in terms of infant mortality, life expectancy, quality of life, child vaccination rates, and enrollment rates [68,69]. Along with educating children, schools play a crucial role in their social and emotional growth as well as their physical education and safety, especially for those who come from violent or abusive homes [69]. Better national health conditions are more likely to exist in nations with greater

education levels. The close relationship between education, health, and wellbeing will also expand the field of biomedical and clinical research by allowing researchers to concentrate on how education affects cellular, biochemical, and molecular changes, including epigenetic changes brought on by environmental insults, that are related to brain health in terms of its functions, as well as the brain's interconnection with psychological and emotional health and how they react to social policies. Achieving two important Sustainable Development Goals (SDGs), including SDG3 to promote good health and wellbeing and SDG4 to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," depends on the growing significance of the relationship between education and health, and personal wellness [68].

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Conflict of Interest

There is no conflict of interest to disclose by the authors.

References

1. Stoewen DL (2017) Dimensions of wellness: Change your habits, change your life. *Can Vet J* 58(8): 861-862.
2. Jasemi M, Valizadeh L, Zamanzadeh V, Keogh B (2017) A concept analysis of holistic care by hybrid model. *Indian J Palliat Care* 23(1): 71-80.
3. Stoewen DL (2015) Health and wellness. *Can Vet J* 56(9): 983-904.
4. Amy Rossi (2010) Wellness programs on the rise. *Biotechnol Healthc* 7(1): 29-30.
5. Musich S, Wang S, Hawkins K, Klemes A (2016) The Impact of personalized preventive care on health care quality, utilization, and expenditures. *Popul Health Manag* 19(6): 389-397.
6. Leonidis A, Korozi M, Sykianaki E, Tsolakou E, Kouroumalis V, et al. (2021) Improving stress management and sleep hygiene in intelligent homes. *Sensors (Basel)* 21(7): 2398.
7. Magnavita N, Garbarino S (2017) Sleep, health and wellness at work: A scoping review. *Int J Environ Res Public Health* 14(11): 1347.
8. Bart R, Ishak WW, Ganjian S, Jaffer KY, Abdelmehseh M, et al. (2018) The assessment and measurement of wellness in the clinical medical setting: A systematic review. *Innov Clin Neurosci* 15(9-10): 14-23.
9. Kemp AH, Fisher Z (2022) Wellbeing, whole health and societal transformation: Theoretical insights and practical applications. *Glob Adv Health Med* 11: 21649561211073077.
10. Alegria Torres JA, Baccarelli A, Bollati V (2011) Epigenetics and lifestyle. *Epigenomics* 3(3): 267-277.
11. Der Sarkissian A, Sharkey JD (2021) Transgenerational trauma and mental health needs among Armenian genocide descendants. *Int J Environ Res Public Health* 18(19): 10554.
12. Umberson D, Montez JK (2010) Social relationships and health: A flashpoint for health policy. *J Health Soc Behav* 51 Suppl(Suppl): S54-S66.
13. Resnik DB (2007) Responsibility for health: Personal, social, and environmental. *J Med Ethics* 33(8): 444-405.
14. Litchfield P, Cooper C, Hancock C, Watt P (2016) Work and wellbeing in the 21st century †. *Int J Environ Res Public Health* 13(11): 1065.
15. Rajgopal T (2010) Mental well-being at the workplace. *Indian J Occup Environ Med* 14(3): 63-65.

16. Afshan G, Ahmed F, Anwer N, Shahid S, Khuhro MA (2022) COVID-19 stress and wellbeing: A phenomenological qualitative study of Pakistani Medical Doctors. *Front Psychol* 13: 920192.
17. Tan H, Luo J, Zhang M (2020) Higher education, happiness, and residents' health. *Front Psychol* 11: 1669.
18. Jiang J (2022) Influence of college education on happiness: A quasi-experimental study based on higher education expansion in China. *Front Psychol* 13: 903398.
19. Vikram K, Vanneman R, Desai S (2012) Linkages between maternal education and childhood immunization in India. *Soc Sci Med* 75(2): 331-339.
20. Schluter PJ, Kokaua J, Tautolo ES, Iusitini L, Richards R, et al. (2022) Parental education related to their children's health in late childhood and early adolescence for Pacific families within New Zealand. *Sci Rep* 12(1): 5313.
21. Education 2030: Incheon declaration and framework for action for the implementation of sustainable development goal 4.
22. Zajacova A, Lawrence EM (2018) The relationship between education and health: reducing disparities through a contextual approach. *Annu Rev Public Health* 39: 273-289.
23. Wang J, Geng L (2019) Effects of socioeconomic status on physical and psychological health: Lifestyle as a mediator. *Int J Environ Res Public Health* 16(2): 281.
24. Kondiroli F, Sunder N (2022) Mental health effects of education. *Health Econ Suppl2(Suppl2)*: 22-39.
25. Wang J, Conwell J (2022) Higher education and health at midlife: Evaluating the role of college quality. *SSM Popul Health* 19: 101228.
26. Winzer R, Lindberg L, Guldbrandsson K, Sidorchuk A (2018) Effects of mental health interventions for students in higher education are sustainable over time: A systematic review and meta-analysis of randomized controlled trials. *Peer J* 6: e4598.
27. Negussie Y, Geller A, Devoe Je (2019) Vibrant and healthy kids: Aligning science, practice, and policy to advance health equity. Washington (DC): National academies press (US), fostering caregiver well-being toward healthy child development.
28. Schneeweis N, Skirbekk V, Winter ER (2014) Does education improve cognitive performance four decades after school completion? *Demography* 51(2): 619-643.
29. Hackman DA, Farah MJ, Meaney MJ (2010) Socioeconomic status and the brain: mechanistic insights from human and animal research. *Nat Rev Neurosci* 11(9): 651-659.
30. Tzankova II, O'Sullivan C, Facciuto AI, Sacchetti L, Fini F, et al. (2023) Engagement with nature and the home environment: Wellbeing and proenvironmental behavior among Irish and Italian university students during the Covid-19 emergency. *Int J Environ Res Public Health* 20(14): 6432.
31. Amin V, Fletcher JM, Sun Z, Lu Q (2021) Higher educational attainment is associated with longer telomeres in midlife: Evidence from sibling comparisons in the UK Biobank. *SSM Popul Health* 17: 101018.
32. Whitaker SM, Bowie JV, McCleary R, Gaskin DJ, LaVeist TA, et al. (2014) The association between educational attainment and diabetes among men in the United States. *Am J Mens Health* 8(4): 349-356.
33. Hahn RA, Truman BI (2015) Education improves public health and promotes health equity. *Int J Health Serv* 45(4): 657-678.
34. Chafouleas SM, Iovino EA (2021) Engaging a whole child, school and community lens in positive education to advance equity in schools. *Front Psychol* 12: 758788.
35. Ruger JP (2006) Toward a theory of a right to health: Capability and incompletely theorized agreements. *Yale J Law Humanit* 18(2): 3.
36. Rehm J, Shield KD (2019) Global burden of disease and the impact of mental and addictive disorders. *Curr Psychiatry Rep* 21(2): 10.
37. Manderson L, Jewett S (2023) Risk, lifestyle and non-communicable diseases of poverty. *Global Health* 19(1): 13.
38. Jenkins R, Baingana F, Ahmad R, McDaid D, Atun R (2011) Social, economic, human rights and political challenges to global mental health. *Ment Health Fam Med* 8(2): 87-96.
39. Lone UM, Bhat SA (2022) Impact of financial literacy on financial well-being: A mediational role of financial self-efficacy. *J Financ Serv Mark* 3: 1-16.
40. Zheng Q, Peng Z, Ding S (2021) Financial literacy, health engagement, and residents' health: Evidence from China. *Int J Environ Res Public Health* 18(8): 4202.
41. Coda MF, Kalwij A (2021) The effectiveness of a formal financial education program at primary schools and the role of informal financial education. *Eval Rev* 45(3-4): 107-133.
42. Sun S, Chen YC (2022) Is financial capability a determinant of health? theory and evidence. *J Fam Econ Issues* 43(4): 744-755.
43. Campbell GC, Hudson DB, Kupzyk KA, Brown SE, Hanna KM, et al. (2016) Low-income, African American, adolescent mothers' depressive symptoms, perceived stress, and social support. *J Child Fam Stud* 25(7): 2306-2314.
44. Stack RJ, Meredith A (2018) The impact of financial hardship on single parents: an exploration of the journey from social distress to seeking help. *J Fam Econ Issues* 39(2): 233-242.
45. Breiner H, Ford M, Gadsden VL (2016) Parenting matters: Supporting parents of children ages 0-8. Washington (DC): National Academies Press (US).
46. Murman DL (2015) The impact of age on cognition. *Semin Hear* 36(3): 111-121.
47. Lövdén M, Fratiglioni L, Glymour MM, Lindenberger U, Tucker DEM (2020) Education and cognitive functioning across the life Span. *Psychol Sci Public Interest* 21(1): 6-41.
48. De Rooij SR (2022) Are brain and cognitive reserve shaped by early life circumstances? *Front Neurosci* 16: 825811.
49. Stern Y (2009) Cognitive reserve. *Neuropsychologia* 47(10): 2015-2028.
50. Roe CM, Xiong C, Miller JP, Morris JC (2007) Education and Alzheimer disease without dementia: Support for the cognitive reserve hypothesis. *Neurology* 68(3): 223-228.
51. Lee SY, Kang JM, Kim DJ, Woo SK, Lee JY, et al. (2020) Cognitive reserve, leisure activity, and neuropsychological profile in the early stage of cognitive decline. *Front Aging Neurosci* 12: 590607.
52. Sala G, Jopp D, Gobet F, Ogawa M, Ishioka Y, et al. (2019) The impact of leisure activities on older adults' cognitive function, physical function, and mental health. *PLoS One* 14(11): e0225006.
53. Zhu W, Li X, Li X, Wang H, Li M, et al. (2021) The protective impact of education on brain structure and function in Alzheimer's disease. *BMC Neurol* 21(1): 423.
54. Mungas D, Gavett B, Fletcher E, Farias ST, DeCarli C, et al. (2018) Education amplifies brain atrophy effect on cognitive decline: implications for cognitive reserve. *Neurobiol Aging* 68: 142-150.
55. Tang X, Varma VR, Miller MI, Carlson MC (2017) Education is associated with sub-regions of the hippocampus and the amygdala vulnerable to neuropathologies of Alzheimer's disease. *Brain Struct Funct* 222(3): 1469-1479.
56. Šimić G, Tkalčić M, Vukić V, Mulc D, Španić E, et al. (2021) Understanding emotions: Origins and roles of the amygdala. *Biomolecules* 11(6): 823.

57. Salzman CD, Fusi S (2010) Emotion, cognition, and mental state representation in amygdala and prefrontal cortex. *Annu Rev Neurosci* 33: 173-202.
58. Li JX, Nguyen HL, Qian T, Woodworth DC, Sajjadi SA, et al. (2023) Longitudinal hippocampal atrophy in hippocampal sclerosis of aging. *Aging Brain* 4: 100092.
59. Kolb B, Gibb R (2011) Brain plasticity and behaviour in the developing brain. *J Can Acad Child Adolesc Psychiatry* 20(4): 265-276.
60. King ML (2019) The neural correlates of well-being: A systematic review of the human neuroimaging and neuropsychological literature. *Cogn Affect Behav Neurosci* 19(4): 779-796.
61. Lenroot RK, Giedd JN (2008) The changing impact of genes and environment on brain development during childhood and adolescence: Initial findings from a neuroimaging study of pediatric twins. *Dev Psychopathol* 20(4): 1161-1175.
62. Whitten LA (2012) Functional Magnetic Resonance Imaging (fMRI): An invaluable tool in translational neuroscience [internet]. Research Triangle Park (NC): RTI Press.
63. Cservenka A, Alarcón G, Jones SA, Nagel BJ (2015) Advances in human neuroconnectivity research: Applications for understanding familial history risk for alcoholism. *Alcohol Res* 37(1): 89-95.
64. Han SD, Boyle PA, Yu L, Fleischman DA, Arfanakis K, et al. (2014) Financial literacy is associated with medial brain region functional connectivity in old age. *Arch Gerontol Geriatr* 59(2): 429-438.
65. (2023) America's university graduates live much longer than non-graduates. *The Economist*.
66. (2020) The lancet public health. education: A neglected social determinant of health. *Lancet Public Health* 5(7): e361.
67. Piya FL, Amin S, Das A, Kabir MA (2022) Impacts of COVID-19 on the education, life and mental health of students in Bangladesh. *Int J Environ Res Public Health* 19(2): 785.
68. Lloyd M (2018) Domestic violence and education: Examining the impact of domestic violence on young children, children, and young people and the potential role of schools. *Front Psychol* 9: 2094.
69. Saini M, Sengupta E, Singh M, Singh H, Singh J (2023) Sustainable development goal for quality education (SDG 4): A study on SDG 4 to extract the pattern of association among the indicators of SDG 4 employing a genetic algorithm. *Educ Inf Technol (DORDR)* 28(2): 2031-2069.