

Association of monthly allowance with body-mass index and body image perception among students

Abstract

Introduction: It is well documented fact that there are differences in the actual and perceived body image among both sexes. This study was aimed to assess the association of monthly allowance with body-mass index (BMI), and body image perception among university students.

Methods: The design of this study was a cross sectional design. A total of 152 students were registered from the International Islamic University Malaysia, Kuantan Campus. A questionnaire administered comprised of three sections i.e. socio-demographic, anthropometric and body image perception data using Figure Rating Scale (FRS) & Shape Questionnaire (BSQ). The collected data on the three aspects were compiled and statistically analyzed using descriptive analysis and Pearson correlation analysis.

Results: The statistical analysis revealed that there was no association between the student students' allowance and body image perception, however, still using considerable amount of their allowances for looking good. The FRS assessment shows that the respondents perceived degree of self-discrepancy between current and ideal body image. The body image perception assessed with BSQ showed the respondents are least concern about body shape. However, there was significant $P < 0.05$ association between body-mass index (BMI) and body image perception assessed with FRS and BSQ.

Conclusions: This study indicates that there is a general trend among the students that when their BMI increases consequently their body image satisfaction decreases. Therefore, it can be inferred that the students spend considerable amount of their stipend on looking good and due to the misperception of body image satisfaction.

Keywords: body-mass index, body image, perception, students, allowance, association

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Abbreviations: BMI, body mass index; FRS, figure rating scale; BSQ, body shape questionnaire; AN, anorexia nervosa; BN, bulimia nervosa; BED, binge-eating disorder

Introduction

Body image perception

The body image is how one visually imagines one's body, an interpretation of his or her physical appearance and perception¹⁻³ which might affect quality of life.⁴ It is a subjective concept⁵ or it is a personal evaluation how person perceive him or herself⁶ or it is unconscious one's feeling, senses.⁷

Factors affecting body image perception

There are several factors that can affect the body image perception.⁸⁻¹⁴ The satisfaction about body image perception becomes a factor for eating¹⁵ and end up with wrong eating habits¹⁶ and some may end up with eating disorders anorexia nervosa (AN), bulimia nervosa (BN) and binge-eating disorder (BED).^{17,18} These might be related to genetic,¹⁹ environmental and psychosocial issues²⁰⁻²² and heavy exercise.^{23,24} Financial stress affect individuals and societies and thus the perceived health,²⁴ and the effect of financial constraints are multidirectional including quality, variety, poorer choice, processed & junk food etc.^{25,26} These are associated with financial status low purchasing power due to lower income.²⁷ In lower income countries,

considerable segment of population have vitamin A deficiency.²⁸ Profession stress affect family, physical and psychological health of individuals debt can lead to anxiety²⁹ which might result in mental health problems.³⁰ The financial literacy and management are crucial for the well-being of the university students³¹ to use money wisely³² otherwise bring them to debts.³³ The university students seem to be less efficient to balance their accounts and least familiar with budgeting.³⁴⁻³⁶ In Malaysia, the main sources of finances among college students is educational loan.³⁷ University students have abnormal BMI and it is more in male compared to female students.³⁸⁻⁴⁰ It is likely that university students practice unhealthy eating habit which lead to gain weight. It has been reported that women are more likely to be obese than men.⁴¹ However, among male university student's obesity may be higher than female.⁴² The higher BMI is associated with dissatisfaction of body image⁴⁵ and in turn trigger the practice of restrictive eating behavior for the desired image.⁴³ Children feel offended with increasing body weight against their body image thus have poor judgment about their appearance⁴⁷ which results in dieting and poor eating.⁴⁴ It is further influenced by peers and male students also likely to perceive their BMI as overweight, fail to see themselves as underweight.⁴⁵ Contrary to the male students, the female prefers themselves to be underweight.^{38,46} Looking backwards on the issue of body image perception among university students which is argued on different aspects instill interest to assess the associations of their perception with the aforementioned variables.

Methods

Study design and sample size calculation

This was a cross sectional study which assessed the association of student's allowance with BMI and body image perception among students. The sample size was calculated using single proportion formula as described by Daniel⁴⁷ and using the prevalence of 12% inaccurate perception of students⁴⁸ with the 10% non-response. The theoretical numbers were 178.2 rounded to 178. Out of these numbers only 152 responded and 26 students declined after registration. Therefore, out of these students a total of 152 students participated in this study. However, another six were also excluded from the analysis due to incomplete answers. Thus, the total respondents in this study were 146 students. The subjects are randomly chosen across the campus of International Islamic University Malaysia Kuantan. The Students were given research information which includes objectives, benefits related information of the research and informed consent was obtained from the students.

Study procedures

The questionnaire designed comprised of three sections; socio-demographic data, anthropometric data and body image perception. The questionnaire involved open-ended, multiple choices and Likert scale. The questionnaire was administered in English.

Socio-demographics

The Socio-demographic data Section A included socio-demographic information which are age, gender, marital status, discipline and self-reported body mass index (BMI). It also included amount and type of sponsorship that students hold, parents' occupation, total monthly allowance and amount spent for looking good. This information was to determine the student allowance. The type of scholarship was classified to various categories in Malaysia, self-sponsored and others.

Anthropometric data

In Section B, subjects' height and weight were measured. This is to calculate their actual BMI. The measurements were made according to the standard procedures for anthropometric measurements at the time of registration. Height was measured without shoes to the nearest 0.1 cm using a stature meter. Weight was measured using Tanita Digital Scale to the nearest 0.1 kg with subjects wearing light clothing and no shoes. The BMI is then calculated using formula of weight (kg) divided by square of height (m²).

Body image perception

For evaluation of body image perception, two types of questionnaires were used: 1) Figure Rating Scale (FRS)⁴⁹ and 2) Body Shape Questionnaire (BSQ).⁵⁰ The Silhouette score in Figure Rating Scale shows the respondents' perceived degree of self-discrepancy between current and ideal body image. Participants respond using illustrations of nine numbered Silhouettes ranging from severely thin (1) to severely obese (9). Ideal body size score minus current body size score was interpreted as discrepancy score. Positive discrepancy score indicated the respondents perceived themselves as thinner than current body. Negative discrepancy score indicated the respondents perceived themselves as bigger than current body. Zero score indicates that they are satisfied with their current body. Body Shape Questionnaire (BSQ) contains 16 questions. Question regarding feelings of the respondents about their appearance were scaled to never (1 point), rarely (2 points), sometimes (3 points), often

(4 points), very often (5 points) and always (6 points). Higher score represents greater concern of body image while lower score represents lower concern of body image.

Data compilation and statistical analysis

The data was compiled from the questionnaires into SPSS spreadsheet and statistically analyzed. All statistical procedures were performed using Statistical Package for Social Science (SPSS Version 12.0.1). The demographic data were analyzed using descriptive analysis. Pearson's Correlation was used to identify the relationship between student allowance and BMI to the body perceived body image.

Results

Sociodemographic information

Among the total of 146 respondents, 68 were male (46.6%) and 78 were female (53.4%). Majority of them were students from Allied Health Sciences (39.0%), Sciences (32.2%) and least were from Dentistry (4.1%). Total Mean monthly allowances and allowance for looking good were RM 526.30 ± 229.91 (150–1500) and RM 93.37 ± 71.54 (0.00–350) respectively.

Body mass index

Students were classified according to BMI category based on World Health Organization (WHO) classification. Mean BMI of the respondents was 22.452 ± 3.19 kg/m² which are in normal range of BMI. The minimum BMI was 15.9 kg/m² (under-weight) and maximum BMI was 38.3 kg/m² (Obese) (Table 1). Among the 146 students (83.56, n=122) were in the normal range of BMI followed by overweight (7.53%, n=11), underweight (4.79%, n=7) and obese (4.11%, n=6). Female students showed higher percentages than male students in underweight and normal category of BMI. Conversely the male students were having higher percentage than female in overweight and obese categories (82 and 83% respectively) (Table 2).

Table 1 The type sponsorship of the students is shown

Sponsorship/Loan	Numbers	Percentage
PTPTN	46	31.5
JPA	36	24.7
Self-Sponsored	32	21.9
State's Loan	22	15.1
Others	10	6.8
Total	146	100

Table 2 Body weight status of the University students based on BMI

Body Status	Male		Female		Total
Body Status	Numbers	(%)	Numbers	(%)	Numbers (%)
Under-Weight	-	-	7	8.97	7 (4.79)
Normal-Weight	54	79.4	68	87.18	122 (83.56)
Over-Weight	9	13.2	2	2.56	11 (7.53)
Obese	5	7.4	1	1.28	6 (4.11)
Total	68	100	78	100	146 (100)

Body image perceptionscore and body shape concern

The FRS results shows that the students perceived degree of self-discrepancy between current and ideal body image which was of greater concern. Majority of the students had negative discrepancy score (55.5%), followed by zero score (23.3%) and positive score (21.2%). The results of BSQ shows that the mean BSQ score was 42.41 ± 1.35 (16 – 92). According BSQ majority of the were least concerned about their shape. Among the students not concerned at all were 41.1%, followed by mild concern (32.9%), moderate concern (15.1%) and only 11.0% were seriously concerned about their body shape (Tables 3&4).

Table 3 The Figure rating Score of the Students

Body image perception	Number	Percentage
Negative Score	81	55.5
Zero Score	34	23.3
Positive Score	31	21.2
Total	146	100

Table 4 The body shape concern of the students

Body shape concern	Numbers	Percentage
No concern with body shape <38	60	41.1
Mild concern with body shape (38-51)	48	32.9
Moderate concern with body shape (52-66)	22	15.1
Very concern with body shape (>66)	16	11

Association of students monthly allowance with BMI and body image perception

It appears that there was no significant association between allowance to look good and body shape concern using both FRS and BSQ). When the association of the BMI and body image perception as assessed using Pearson correlation analysis it was found that there were significant associations between BMI and body shape concern using both the questionnaire FRS & BSQ being the coefficients of correlations $r=0.331$, $p<0.05$ and $r=-0.469$ $p<0.05$ respectively. Interestingly the association for FRS was negative and BSQ positive which needs further elaboration.

Discussion

Students allowances

As mentioned earlier, that the objective of this study was to evaluate students' allowance, BMI and body image perception of the students. Majority of the students were on National Higher Education Fund Corporation (PTPTN) loan. It is the loan that is offered by federal government that enable students to pursue their tertiary education in Malaysian colleges/universities.⁴⁰ Most students receive educational loan from PTPTN or financial support from Public Service Department (JPA).⁵¹ From the result of the current study, it was found that the mean of student's monthly allowance which is RM 526.30 per month. The amount of the monthly allowance is a greater compared to a study conducted by Ayupp, Ling & Tudin⁵² and is expected to be greater than before as well, however, the allowances vary (PTPTN, 2014). The monthly allowance for looking good is not really examined

and this type of allowance may cover new clothes, buying food, gym fee, makeups and other purpose that result in looking good. Some factors may provoke the use of allowance for purpose other than education. Gender is one of the factors that determines purposes of the expenditure. According to Wang and Xiao⁵³ female spend more of their money for clothes whereas male is prone to spend their money for entertainment and eating outside. Unlike other countries, the credit card use among student is none in this group of students.⁵⁴

Body mass index

Generally, the BMI status of the students was in normal apparently in healthy body weight. However, in the categories of over-weight and obese there were more male than female which contradictory to a study conducted in Malaysia.⁵⁵ The numbers of obese among the students in present study were 4.1% is higher than the previous study conducted another campus.⁵⁶ These numbers of over-weight or obese may not be the representatives of the entire country therefore, the percentages may only be reliable if the samples are considered from all universities. This is the major shortcoming of this study and the studies carried out earlier that were limited to a single campus. The present study revealed that the students assessed FRS significant ($r=-0.469$ $p<0.05$) negative perception about their body image. It shows that most of the students were not satisfied with their body and prefer to look thinner than their present body shape. The body image dissatisfaction and body distortion are prevalent among youth.⁵⁷ Many factors influenced the body image satisfaction. Compared to men, women show lower body satisfaction and wish to be thinner than their current body.⁵⁸ Among male it is seems to be common factor and prefer their ideal figure to be overweight whereas female wish to be underweight.³⁸ Among male adolescents when the body image distorted the end up with the use alternative to gain muscles.³⁸ The BSQs results show that student is significantly ($r = 0.331$, $p<0.05$) satisfied with their current body shape and have positive perception. According to a study by Morry & Staska⁵⁸ found that reading magazine is a significant predictor for men to have a dissatisfied body shape. Fitness magazines can affect men's satisfaction towards their body.

Financial status in this study focused on the students' allowance and the amount they spend for their look, health and appearance. Correlating the allowance to look good with both BSQ score and FRS score, it shows no association between those variables. Contradictory to the current study, Ansari et al.,⁴⁶ reported that students with financial stress were likely to feel "too fat" and were less likely to feel "just right" about their body. However, the study used different questionnaire, Health Behavior in School-aged Children (HBSC) to a population of university student. This has been also associated with stress by Roy and Steptoe⁵⁹ who report that depression caused by surrounding factors could mediate the effect of financial stress on body image perception, thus resulting in negative body image perception.

Monthly allowance and body image perception

The result revealed that there is significant correlation between BMI and score of the BSQ and FRS. The value of BMI influences the body image perception among university students. The positive correlation between BMI and BSQ score shows that when BMI increase, the concerns about body shape are also increase. In another study body image has been shown to be significantly with BMI or obesity.^{60,61} The bigger is their perception the higher is the degree of dissatisfaction of body shape. The correlation between BMI and FRS score showed

negative-fair correlation. It means that there is an inverse relationship between those two variables and when BMI decreases, the FRS score increases. In other words, when the BMI increases, the FRS will be decreasing which shows the dissatisfaction of body image. The 27 or more negative score indicates the dissatisfaction towards current body and wishes to be thinner although the BMI is normal. It is on records that women tend to think they are and speculate themselves as obese and shows some kind of dissatisfaction.⁶² According to Kuan et al.,³⁸ BMI is significant positive predictors of body image disturbance and this is the conclusion from study conducted on university students. Higher BMI affects women self-image discrepancy which they prefer to be two or three body sizes smaller than their current body.

Conclusion

It can be concluded that there is significant association between body-mass index (BMI) and body image perception among the university students. The students in this study indicated a that when their BMI increases their body image satisfaction decreases.

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Conflicts of interest

This was a self-supported study and we declare that there are no conflict of interest exists among the authors.

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References

- Costa Lda C, de Vasconcelos Fde A. Influence of socioeconomic, behavioral and nutritional factors on dissatisfaction with body image among female university students in Florianopolis. *SC Revista Brasileira de Epidemiologia*. 2010;13(4):65–676.
- Slade PD. What is body image? *Behaviour Research and Therapy*. 1994;32(5):497–502.
- Moe B. Understanding Negative Body Image. Published in 1999 by The Rosen Publishing Group, Inc. 29 East 21st Street, New York; 1999.
- Leone JE, Partridge JA, Maurer-Starks SP. Psychobehavioral Attributes of Body Image in College Freshmen and Seniors : Implications for Long-Term Health. *Health Educator*. 2011;43(1):13–20.
- Martin J. The Development of Ideal Body Image Perceptions in the United States. *Nutrition Today*. 2010;45(3):98–110.
- Frost J, McKelvie SJ. The relationship of self-esteem and body satisfaction to exercise activity for male and female elementary school, high school, and university students. *Athletic Insight: The Online Journal of Sport Psychology*. 2005;7:36–49.
- Mills C, Cooling K. The use of a 3D avatar to determine the association between actual and perceived body mass index. *Adv Obes Weight Manag Control*. 2020;10(1):1–2.
- Khor GL, Zalilah MS, Phan YY, et al. Perceptions of body image among Malaysian male and female adolescents. *Singapore medical journal*. 2009;50(3):303–311.
- Green SP, Pritchard ME. Predictors of body image dissatisfaction in adult men and women. *Social Behavior and Personality: an international journal*. 2003;31(3):215–222.
- Dunkley TL, Wertheim EH, Paxton SJ. Examination of a model of multiple sociocultural influences on adolescent girls' body dissatisfaction and dietary restraint. *Adolescence*. 2001;36(142):265–279.
- Rieves LC, Cash TF. Social developmental factors and women's body image attitudes. *Journal of Social Behavior and Personality*. 1996;11:63–78.
- Levine MP, Smolak L, Moodey A F, et al. Normative developmental challenges and dieting and eating disturbances in middle school girls. *International Journal of Eating Disorders*. 1994;15:11–20.
- Grogan S, William Z, Conner M. The effect of viewing same gender photographic models on body esteem. *Psychology of Women Quarterly*. 1996;20:569–575.
- Stice E, Hayward C, Cameron R, et al. Body image and eating disturbances predict onset of depression among female adolescents: A longitudinal study. *Journal of Abnormal Psychology*. 2000;109:438–444.
- Burrowes N. Body images rapid evidence assessment of the literature. Government Equalities Office. United Kingdom. A project on behalf of the Government Equalities Office. 2013.
- Neumark-Sztainer D, Wall M, Story M. et al. Dieting and unhealthy weight control behaviors during adolescence: associations with 10- year changes in body mass index. *Journal of Adolescent Health*. 2012;50(1):80–86.
- Brewerton TD. Binge Eating Disorder. *Mol Diag Ther*. 1999;11:351–361.
- The National Eating Disorders Collaboration, 2016.
- Pull CB. Binge eating disorder. *Current Opinion in Psychiatry*. 2004;17(1):43–48.
- Strober M, Freeman R, Lampert C, et al Controlled family study of anorexia nervosa and bulimia nervosa: evidence of shared liability and transmission of partial syndromes. *American Journal of Psychiatry*. 2000;157:393–401.
- Trace SE, Baker JH, Peñas-Lledó E. The genetics of eating disorders. *Annual review of clinical psychology*. 2013;9:589–620.
- Bulik CM, Sullivan PF, Tozzi F. Prevalence, heritability, and prospective risk factors for anorexia nervosa. *Archives of general psychiatry*. 2006;63(3):305–312.
- Toselli S, Spiga F. Sport practice, physical structure, and body image among university students. *J Eat Disord*. 2017;5:31.
- Hagquist CE. Economic stress and perceived health among adolescents in Sweden. *Journal of Adolescent Health*. 1998;22(3):250–257.
- O'Dea J, Caputi P. Association between socioeconomic status, weight, age and gender and the body image and weight control practices of 6 to 19 year old children and adolescents. *Health Educ Res*. 2001;16(5):521–532.
- Baum A, Garofalo JP, Yali A. Socioeconomic status and chronic stress: does stress account for SES effects on health? *Annals of the New York Academy of Sciences*. 1999;896(1):131–144.
- Roos E, Lahelma E, Virtanen M, et al. Gender, Socioeconomic Status and Family Status as Determinants of food behaviour. *Soc Sci Med*. 1998;46(12):1519–1529.
- West KP, Mehra S. Vitamin A intake and status in populations facing economic stress. *The Journal of nutrition*. 2010;140(1):201S–207S.
- Turunen E, Hiilamo H. Health effects of indebtedness: a systematic review. *BMC Public Health*. 2014;14:489.

30. Cooke Richard, Barkham Michael, Audin Kerry, et al. Student Debt and Its Relation to Student Mental Health. *Journal of Further and Higher Education*. 2004;28:53–66.
31. Connelly D. Beyond Saving (Elsternwick, Victoria: Wrightbooks). 2001.
32. Noctor M, Stoney S, Stradling R. Financial Literacy”, a report prepared for the National Westminster Bank, London; 1992.
33. Hudson JI, Hiripi E, Pope HG, et al. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological psychiatry*. 2007;61(3):348–358.
34. Kendrick E. Give ‘em credit: When is it right for students? *Austin Business Journal*. 1999;19(25):26–38.
35. Williams-Harold B, Smith EL. Saving is Fundamental. *Black Enterprise*. 1999;29:30.
36. Henry RA, Weber JG, Yarbrough D. Money Management Practices Of College Students. *College Student Journal*. 2001;35(2):244.
37. Hira TK, Anderson MM, Peterson K. Students perceptions of their education debt and its impact on life after graduation. *Journal of Student Financial Aids*. 2000;30(1):7–20.
38. Kuan PX, Ho HL, Shuhaili MS, et al. Gender differences in body mass index, body weight perception and weight loss strategies among undergraduates in Universiti Malaysia Sarawak. *Malays J Nutr*. 2011;17(1):6775.
39. Chong SLF. Eating habits and body image perceptions among University Malaysia Sabah students. 2013.
40. Ismail I, Ismail S. Faculty of Education Student Diet in University of Technology Malaysia (Doctoral dissertation, University of Technology Malaysia). World Health Organization. 2012
41. Yahia N, Achkar A, Abdallah A, et al. Eating habits and obesity among Lebanese university students. *Nutrition journal*. 2008;7(1):1.
42. Kinlen AD. Self-perceptions and body image in preadolescent girls and boys (Doctoral dissertation, Oklahoma State University). 2006.
43. Pon LW, Mirmalini K, Mohd Nasir MT. Body image perception, dietary practices and physical activity of overweight and normal weight Malaysian female adolescents. *Malaysian Journal of Nutrition*. 2004;10(2):131–137.
44. Bardone-Cone AM, Cass KM, Ford J. Examining body dissatisfaction in young men within a biopsychosocial framework. *Body Image*. 2008;5:183–194.
45. Ansari WE, Clausen SV, Mabhala A, et al. How Do I Look? Body Image Perceptions among University Students from England and Denmark. *International Journal of Environmental Research and Public Health*. 2010;7(2):583–595.
46. Daniel WW. Determination of sample size for estimating proportions. In: *Biostatistics: A Foundation for Analysis in Health*. John Wiley & Sons, Inc., New York; 1999. 183 p.
47. Wharton CM, Adams T, Hampl JS, et al. Weight loss practices and body weight perceptions among US college students. *Journal of American college health: J of ACH*. 2008;56(5):579–584.
48. AJ Stunkard TI, Sorensen F, Schulsinger. Use of the Danish Adoption Register for the Study of Obesity and Thinness. Raven Press: New York; 1983.
49. Cooper PJ, Taylor MJ, Cooper Z, et al. The development and validation of the Body Shape Questionnaire. *International Journal of Eating Disorders*. 6:485–494.
50. Rambely AS, Shahabuddin FA. The prevalence of low performing students at the School of Mathematical Sciences. *Procedia-Social and Behavioral Sciences*. 2011;1986;18:335–341.
51. Ayupp K, Ling LN, Tudin, A. An Analysis of Luxury Products Purchasing Behavior of Malaysian University Students. *Asian Journal of Social Sciences and Humanities*. 2013;(4):227.
52. Wang J, Xiao JJ. Buying behavior, social support and credit card indebtedness of college students. *International Journal of Consumer Studies*. 2009;33(1):2–10.
53. Norvilitis JM, Merwin MM, Osberg TM, et al. Personality Factors, Money Attitudes, Financial Knowledge, and Credit-Card Debt in College Students1. *Journal of Applied Social Psychology*. 2006;36:1395–1413.
54. Nazri N, Talib RA. Involvement of Activities at the College of Residential and its Relation to Nutrition Status among National Universities Students of Malaysia (UKM) Kampus Kuala Lumpur. *Malaysian Journal of Health Sciences*. 2013;1(2):9–17.
55. Huda N, Ahmad R. Preliminary Survey on nutritional status among University students at Malaysia. *Pak J Nutr*. 2010;9(2):125–127.
56. Green SP, Pritchard ME. Predictors of body image dissatisfaction in adult men and women. *Social Behavior and Personality: an international journal*. 2003;31(3):215–222.
57. Morry MM, Staska SL. Magazine exposure: Internalization, self objectification, eating attitudes, and body satisfaction in male and female university students. *Canadian Journal of Behavioural Science*. 2001;33(4):269.
58. Roy MP Steptoe A. Daily stressors and social support availability as predictors of depressed mood in male firefighters. *Work Stress*. 1994;8:210–219.
59. Conti M. Body image and nutritional status of Students from a private school. University of São Paulo. 2002.
60. Pattanathaburt P, Somrongthong R, Thianthai C. Prevalence of disordered eating behaviors, body image dissatisfaction, and associated factors among Thai female undergraduate students. *International Journal of Health Promotion and Education*. 2013;51(3):151–160.
61. Wronka I, Suliga E, Pawlinska-Chmara R. Perceived and desired body weight among female university students in relation to BMI-based weight status and socio-economic factors. *Annals of Agricultural and Environmental Medicine*. 2013;20:3.
62. Creedon MT, Ray S, Harkins DA. Peer teasing, body-image and eating problems among women. *American Journal of Psychological Research*. 2009;1(5):111–130.