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Knowledge of University Athletes about Knowing and Monitoring of Vital Signs of Blood Pressure (BP), Heart Rate (HR) and Body Mass Index (BMI) as Preventive Strategy in Reducing Early and Unsuccessful Ageing Cased at Njala Campus

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Abstract

Aim: To assess the preventive strategy in reducing early and unsuccessful ageing among University Athletes using Njala Campus as a case study, with the significance to measure and evaluate the knowledge of University Athlete about knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI] as preventive strategy in reducing early and unsuccessful ageing. **Method:** The modified health risk behavioural survey questionnaire [MHRBSQ] was adopted for testing the parameters. The respondents interviewed were mainly undergraduate athletes with an aggregate of one hundred and fifty [n=150]. However, 55 with 37% were female and 95 with 63% were male, selected using the systematic random sampling. Also sampled were four Schools:25 with 16.6% female and 40 with 26.6% male from the School of Agriculture & Environmental Science;30 with 20% female and 55 with 37% male from the School of Education & Technology, from level [100-200] and from level [300-400], within the age range of [18-30 year]. **Results:** Analysis of findings from knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI], show a holistic significant difference in all three variables [t-values of 4.666, 4.711 and 3.368 $p<0.05$].**Conclusion:** Conclusively therefore, the findings show that majority of the University Athletes were experienced holistically in their knowledge about preventive strategy in reducing early and unsuccessful ageing with respect to the evaluated variables. It was recommended that University Athletes be given thoroughly supervised seminars, workshops and screening prior to any intercollegiate competitions held, with special reference to knowledge of vital signs.

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Introduction

Vital signs [shortened as vitals] are used to measure the body's basic functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward recovery. The normal ranges for a person's vital signs vary with age, weight, gender, and overall health, *National Early Warning Score Development and*

Implementation Group (2012). There are four primary vital signs: body temperature, blood pressure, pulse (heart rate), and breathing rate (respiratory rate), often notated as BT, BP, HR, and RR. However, depending on the clinical setting, the vital signs may include other measurements called fifth or sixth vital sign such as the body mass index shortened as BMI. Vital signs are recorded using the LOINC internationally accepted standard coding system, *National Institute for Health and Clinical Excellence (2007).*Early warning scores have been proposed that combine the individual values of vital signs into a single score. This was done in recognition that deteriorating vital signs often precede cardiac arrest and/or admission to the intensive care unit. Used appropriately, a rapid response team can assess and treat a deteriorating patient and prevent adverse outcomes, *Acute Care Toolkit (2013).*

Wellness is generally used to mean a healthy balance of the mind, body and spirit that results in an overall feeling of well-being. It has been used in the context of alternative medicine since *Halbert, L. Dunn, M.D.*, began using the phrase high-level wellness in the 1950s. The modern concept of wellness did not, however, become popular until the 1970s, *Zimmer, B. (2010).Halbert, L. and Dunn, M. D.*, began using the phrase high-level wellness in the 1950s, based on a series of lectures at a Unitarian Universalist Church in Arlington, Virginia, in the United States. Dunn (196, p. 4) defined wellness as "an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable. It requires that the individual maintain a continuum of balance and purposeful direction within the environment where he is functioning." He also stated that, "wellness is a direction in progress toward an ever-higher potential of functioning" (p. 6). Dunn also described wellness as health being, "much more than the absence of disease remains a cornerstone concept of wellness today." (Dunn, 787, p 7) Dunn saw wellness as hierarchical: there were lower levels of wellness and higher ones, and the aim was to move everyone up from where they started to high-level wellness (Dunn, 789, p 8), *Neilson, E. A. (1988).*

Health is that balanced condition of the living organism in which the integral, harmonious performance of the vital functions tends to the preservation of the organism and the normal development of the individual, *World Health Organization (2011).* Physical fitness is a measure of the individual body's ability and capability to function efficiently and effectively during work and leisure times, with the tendency of resisting hypokinetic diseases, and to meet unforeseen situations, *Colfer, G. R. (2004).*

Blood pressure (BP) is the pressure exerted by circulating blood upon the walls of blood vessels. When used without further specification, "blood pressure" usually refers to the arterial pressure in the systemic circulation. It is usually measured at a person's upper arm. Blood pressure is usually expressed in terms of the systolic (maximum) pressure over diastolic (minimum) pressure and is measured in millimeters of mercury (mmHg). It is one of the vital signs along with respiratory rate, heart rate, oxygen saturation and body temperature. Normal resting blood pressure in an adult is approximately 120/80 mmHg, *American Heart Association (2011).*Blood pressure varies depending on situation, activity, and disease states. It is regulated by the nervous and endocrine systems. Blood pressure that is low due to a disease state is called hypotension, and pressure that is consistently high is hypertension. Both have many causes, which can range from mild to severe. Both may be of sudden onset or of long duration. Long-term hypertension is a risk factor for many diseases, including kidney failure, heart disease and stroke. Long-term hypertension is more common than long-term hypotension in Western countries. Long-term hypertension often goes undetected because of infrequent monitoring and the absence of symptoms, *Mayo Clinic staff (2009).*In the UK, clinic blood pressures are usually categorized into three groups; low (90/60 or lower), normal (between 90/60 and 139/80), and high (140/90 or higher), *National Heart Lung and Blood Institute(2008).* Systolic and diastolic arterial blood pressures are not static but undergo

natural variations from one heartbeat to another and throughout the day (in a circadian rhythm). They also change in response to stress, nutritional factors, drugs, disease, exercise, and momentarily from standing up. Sometimes the variations are large. Hypertension refers to arterial pressure being abnormally high, as opposed to hypotension, when it is abnormally low. Along with body temperature, respiratory rate, and pulse rate, blood pressure is one of the four main vital signs routinely monitored by medical professionals and healthcare providers, *Deakin, C. D. et al.(2000).*

Heart rate (HR), or heart pulse, is the speed of the heartbeat measured by the number of poundings of the heart per unit of time - typically beats per minute (bpm). The heart rate can vary according to the body's physical needs, including the need to absorb oxygen and excrete carbon dioxide. Activities that can provoke change include physical exercise, sleep, anxiety, stress, illness, ingesting, and drugs. The normal resting adult human heart rate ranges from 60–100 (bpm), *"Target Heart Rates - AHA" (2014).*Tachycardia is a fast heart rate, defined as above 100 (bpm) at rest, *"Tachycardia Fast Heart Rate" (2013).*Bradycardia is a slow heart rate, defined as below 60 (bpm) at rest. During sleep a slow heartbeat with rates around 40–50 (bpm) is common and is considered normal. When the heart is not beating in a regular pattern, this is referred to as an arrhythmia. These abnormalities of heart rate sometimes indicate disease, *"Tachycardia Fast Heart Rate" (2013).*While heart rhythm is regulated entirely by the Sino atrial node under normal conditions, heart rate is regulated by sympathetic and parasympathetic input to the Sino atrial node. The accelerants nerve provides sympathetic input to the heart by releasing norepinephrine onto the cells of the Sino atrial node, and the vagus nerve provides parasympathetic input to the heart by releasing acetylcholine onto Sino atrial node (SAN) cells. Therefore, stimulation of the accelerants nerve increases heart rate, while stimulation of the vagus nerve decreases it, *Schmidt-Nielsen and Knut (1997).*Due to individuals having a constant blood volume, one of the physiological ways to deliver more oxygen to an organ is to increase heart rate to permit blood to pass by the organ more often, *"Tachycardia Fast Heart Rate" (2013).*Normal resting heart rates range from 60–100 (bpm). Bradycardia is defined as a resting heart rate below 60 (bpm). However, heart rate(s) from 50 to 60 (bpm) are common among healthy people and do not necessarily require special attention. Tachycardia is defined as a resting heart rate above 100 (bpm), though persistent rest rates between 80–100 (bpm), mainly if they are present during sleep, may be signs of hyperthyroidism or anemia, *"Tachycardia Fast Heart Rate" (2013).*There are many ways in which the heart rate speeds up or slows down. Most involve stimulant-like endorphins and hormones being released in the brain, many of which are those that are 'forced'/'enticed' out by the ingestion and processing of drugs, *Anderson, J. M. (1991).*

Body mass index (BMI), or Quetelet index, is a value derived from the mass (weight) and height of an individual. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m^2, resulting from weight in kilograms and height in meters, *World Health Organization BMI Classification (2006)* or chart which displays BMI as a function of mass and height using contour lines or colors for different BMI categories, and may use two different units of measurement, *Eknoyan and Garabed (2007).* The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value. However, there is some debate about where on the BMI scale the dividing lines between categories should be placed. Commonly accepted BMI ranges are underweight: 18.5, normal weight: 18.5 to 25, overweight: 25 to 30, obese: over 30 (kg/m^2), *Malcolm, K., Dr. (2015).* There are criticisms of using the BMI to define obesity in individuals. One is that the BMI was designed for population studies, not individuals. Another is that body fat percentage (BFP) is a more reliable indicator of obesity than BMI: very muscular, lean (low body fat) individuals can be classified as obese using BMI, but are

classified as having a normal weight using BFP. An even simpler alternative to the BMI is to define obese individuals as those whose waist circumference is greater than 50% of their height, indicating excess intra-abdominal fat, *Jeremy Singer-Vine (2009).*

The index was devised by *Adolphe Quetelet (1830-1850)* during which time he developed what he called "social physics", *Eknoyan and Garabed (2007).* The modern term "body mass index" (BMI) for the ratio of weight to squared height owes its popularity to a paper published in the *July 1972 edition of the Journal of Chronic Diseases by Ancel Keys*. This found the BMI to be the best proxy for body fat percentage among ratios of weight and height, *Keys, A. et al. (1972).*The interest in an index that measures body fat came with increasing obesity in prosperous Western societies. Keys explicitly cited BMI as appropriate for population studies and inappropriate for individual evaluation. Nevertheless, due to its simplicity, it has come to be widely used for preliminary diagnosis, *National Heart, Lung and Blood Institute (2014).*

Collegiate athletes by definition are athletes that are engaged in organized games and sports competition sponsored by individual educational institutions. *Gerdy, R. (2000)*. Collegiate athletes that give positive reason to the contraindications posed by behavioral risk factors, *Muffuli, et al. (2003)* that progresses unsuccessful ageing is referred to as primary prevention knowledge. However, successful ageing refers to physical, mental and social well-being in older age. The concept of successful aging can be traced back to the 1950s, and was popularized in the 1980s. It reflects changing view on aging in Western countries, where a stigma associated with old age(see ageism) has led to considering older people as a burden on society. Consequently, in the past most of the scientists have been focusing on negative aspects of aging or preventing the decline of youth, *Rowe, J. et al. (1997) and Fries, J. F. (2002).* Research on successful aging, however, acknowledges the fact that there is a growing number of older adults functioning at a high level and contributing to the society. Scientists working in this area seek to define what differentiates successful from usual aging in order to design effective strategies and medical interventions to protect health and well-being from aging, *Rowe, J. et al. (1997); Cantoni, G. (1998); WHO (2003); Peel, N. M. et al. (2005); Phelan, E. A. (2002) and Lupien, S. J. (2004).* Researchers in ageing studies are critical of the very term 'successful ageing' as it implies failure on the part of those who do not meet arbitrary criteria derived from neoliberal and/or biomedical definitions, *Katz, S. (2015).*

This study only looked at the assessment ofUniversity Athletes knowledge about the knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI], as preventive strategy in reducing early and unsuccessful ageing, ranked through 100-to-200 and 300-to-400 levels, thereby pointing outcomparatively the significant differences between the dependent variables regarding blood pressure [BP], heart rate [HR] and body mass index [BMI] cased at Njala Campus.

Materials and Methods

Respondents interviewed were mainly undergraduates' athletes with an aggregate of one hundred and fifty [n=150]. However, 55 with 37% were female and 95 with 63% were male; 30 with 20% female Christians and 40 with 27% male Christians; 25 with 16.6% female Muslims and 55 with 36.6% male Muslims; 4 with 3% married female and 6 with 4% married male; 51 with 34% female single and 89 with 59% male single; 35 with 23.3% South-East female and 65 with 43.3% South-East male; 20 with 13% North-West female and 30 with 20% North-West male, were selected using the systematic random sampling. Also sampled were four Schools: 25 with 16.6% female and 40 with 26.6% male from the School of Agriculture & Environmental Science; 30 with 20% female and 55 with 37% male from the School of Education & Technology; 45 with 30% female and 80 with 53% male from level [100-200]; 10 with 7% female and 15 with 10% male from level [300-

400]; 30 with 20% female and 60 with 40% male were within the age range of [18-25]; 25 with 17% female and 35 with 23% male were within the age range of [26-30+] in years.

Instrument for Measuring Parameters

The descriptive survey research design was used for the research. The dependent variables tested were: knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI]. The modified health risk behavioural survey questionnaire [MHRBSQ] was adopted as the research instrument for testing the parameters that was formally worked on by *Bebeley, S. J. (2016).* The questionnaire was supported with *Section-One* demographic data and *Section-Two* variable data. Senior colleagues in the Department of Human Kinetics and Health Education, Njala University and College of Physical Education and Sport Training, Shanghai University of Sport, validated the questionnaire as research instrument which was pre-tested on an aggregate of 50 Polytech Athletes from Kenema using the test retest method, thereby producing a high reliability of *0.99* as referenced in tables 1-2 below.

Test Procedures

Respondents interviewed were mainly undergraduate University Athletes with an aggregate of one hundred and fifty [n=150] rankedthrough 100-to-200 and 300-to-400 levels and Schooledthrough Agriculture-to-Environmental Science and Education-to-Technology, Njala Campus. The respondents were interviewed by the researchers helped by some academic staff members of the Department of Human Kinetics and Health Education adopting the face-to-face logic based on the dependent variables, before the Campus Sport Complex prior to training session adhering strictly to the dependent variables in their response. The individual responses were compiled for statistical analyses.

Statistical Analysis

The standard deviation, mean, inferential statistics of Dependent t-test [t], percentage and frequency distribution tables, were adopted for analyzing the data obtained from University Athletes using Njala Campus as case study about their knowledge of preventive strategy in decreasing early ageing through a modified health risk behavioural survey questionnaire [MHRBSQ] as research instrument for testing the variables, which was formally used by *Bebeley, et al. (2016),*objected towards plausible differences on the views of University Athletes knowledge about preventive strategy in reducing early and unsuccessful ageing. The results were evaluated at level of significance $p<0.05$.

Results

Table 1. Reliability Test-retest Demographic Data of Respondents according to Gender [n=50]

Gender	Age				P^2		Q^2		Ti		Ti^2	
	P [18-25]		Q [26-35+]		R_1	R_2	R_1	R_2	$R_1 \sum R_2$		$R_1 \sum R_2$	
	R_1	R_2	R_1	R_2					P	Q	P	Q
Male	25	24	10	11	625	576	100	121	49	21	2401	441
Female	10	09	05	06	100	81	25	36	19	11	361	121
[n=2]	**$*\sum P = 68$**		**$*\sum Q = 32$**		**$*\sum P^2$ = 1382**		**$*\sum Q^2$ = 282**		**$*\sum Ti^2$ =**		**2762**	**562**
	$*[\sum P]^2 = 4624$		**$*[\sum Q]^2 = 1024$**				***Reliability = 0.99**					

Gender	Marital Status P [Single] R_1	R_2	Q [Married] R_1	R_2	P^2 R_1	R_2	Q^2 R_1	R_2	Ti $R_1 \sum R_2$ P	Q	Ti^2 $R_1 \sum R_2$ P	Q
Male	30	29	08	09	900	841	64	81	59	17	3481	289
Female	10	09	02	03	100	81	04	09	19	05	361	25
[n=2]	***∑P = 78**		***∑Q = 22**		***∑P^2 = 1922**		***∑Q^2 = 158**		***∑Ti^2 =**		**3842**	**314**
	***$[\sum P]^2$ = 6084**		***$[\sum Q]^2$ = 484**				***Reliability = 0.99**					

Gender	Religion Category P [Muslim] R_1	R_2	Q [Christian] R_1	R_2	P^2 R_1	R_2	Q^2 R_1	R_2	Ti $R_1 \sum R_2$ P	Q	Ti^2 $R_1 \sum R_2$ P	Q
Male	26	25	10	09	676	625	100	81	51	19	2601	361
Female	10	11	04	05	100	121	16	25	21	07	441	49
[n=2]	***∑P = 72**		***∑Q = 26**		***∑P^2 = 1522**		***∑Q^2 = 222**		***∑Ti^2 =**		**3042**	**410**
	***$[\sum P]^2$ = 5184**		***$[\sum Q]^2$ = 676**				***Reliability = 0.99**					

Gender	Region Allocation P [South/East] R_1	R_2	Q [North/West] R_1	R_2	P^2 R_1	R_2	Q^2 R_1	R_2	Ti $R_1 \sum R_2$ P	Q	Ti^2 $R_1 \sum R_2$ P	Q
Male	22	23	15	14	484	529	225	196	45	29	2025	841
Female	08	09	05	04	64	81	25	16	17	09	289	81
[n=2]	***∑P = 62**		***∑Q = 38**		***∑P^2 = 1158**		***∑Q^2 = 462**		***∑Ti^2 =**		**2314**	**922**
	***$[\sum P]^2$ = 3844**		***$[\sum Q]^2$ = 1444**				***Reliability = 0.99**					

Gender	School of Studies P [Edu/Tech] R_1	R_2	Q [Ag./Env Sc.] R_1	R_2	P^2 R_1	R_2	Q^2 R_1	R_2	Ti $R_1 \sum R_2$ P	Q	Ti^2 $R_1 \sum R_2$ P	Q
Male	24	25	12	11	576	625	144	121	49	23	2401	529
Female	06	07	08	07	36	49	64	49	13	15	169	225
[n=2]	***∑P = 62**		***∑Q = 38**		***∑P^2 = 1286**		***∑Q^2 = 378**		***∑Ti^2 =**		**2570**	**754**
	***$[\sum P]^2$ = 3844**		***$[\sum Q]^2$ = 1444**				***Reliability = 0.99**					

Gender	Level of Academe P [Lv_1-Lv_2] R_1	R_2	Q [Lv_3-Lv_4] R_1	R_2	P^2 R_1	R_2	Q^2 R_1	R_2	Ti $R_1 \sum R_2$ P	Q	Ti^2 $R_1 \sum R_2$ P	Q
Male	28	29	10	09	784	841	100	81	57	19	3249	361
Female	10	11	02	01	100	121	04	01	21	03	441	09

[n=2]	***∑P = 78**	***∑Q = 22**	***$\sum P^2$ = 1846**	***$\sum Q^2$ = 186**	***$\sum Ti^2$ =**	**3690**	**370**
	***$[\sum P]^2$ = 6084**	***$[\sum Q]^2$ = 484**		***Reliability = 0.99**			

Table 2. Reliability Test-retest of Polytechnic Athletes' knowledge about knowing& monitoring of vital signs as primary preventive strategy in reducing early and unsuccessful ageing [n=50]

Variable	**Blood Pressure**				**P^2**		**Q^2**		**Ti**		**Ti^2**	
	P [Yes]		**Q [No]**		**R_1**	**R_2**	**R_1**	**R_2**	**$R_1 \sum R_2$**		**$R_1 \sum R_2$**	
	R_1	**R_2**	**R_1**	**R_2**					**P**	**Q**	**P**	**Q**
1	41	40	09	10	1681	1600	81	100	81	19	6561	361
2	38	37	12	13	1444	1369	144	169	75	25	5625	625
3	34	33	16	17	1156	1089	256	289	67	33	4489	1089
4	44	43	06	07	1936	1849	36	49	87	13	7569	169
5	48	47	02	03	2304	2209	04	09	95	05	9025	25
6	32	31	18	19	1024	961	324	361	63	37	3969	1369
[n=6]	**∑P = 486**		**∑Q = 132**		**$\sum P^2$ = 18622**		**$\sum Q^2$ = 1822**		**$\sum Ti^2$ =**		**37238**	**3638**
	$[\sum P]^2$ = 219024		**$[\sum Q]^2$ = 17424**				***Reliability = 0.99**					

Variable	**Heart Rate**				**P^2**		**Q^2**		**Ti**		**Ti^2**	
	P [Yes]		**Q [No]**		**R_1**	**R_2**	**R_1**	**R_2**	**$R_1 \sum R_2$**		**$R_1 \sum R_2$**	
	R_1	**R_2**	**R_1**	**R_2**					**P**	**Q**	**P**	**Q**
1	39	38	11	12	1521	1444	121	144	77	23	5929	529

2	42	41	08	09	1764	1681	64	81	83	17	6889	289
3	34	33	16	17	1156	1089	256	289	67	33	4489	1089
4	35	34	15	16	1225	1156	225	256	69	31	4761	961
5	44	43	06	07	1936	1849	36	49	87	13	7569	169
6	42	41	08	09	1764	1681	64	81	83	17	6889	289
[n=6]	**$\sum P = 466$**		**$\sum Q = 134$**		**$\sum P^2 = 18266$**		**$\sum Q^2 = 1666$**		**$\sum Ti^2 =$**		**36526**	**3326**
	$(\sum P)^2 = 217156$		**$(\sum Q)^2 = 17956$**		***Reliability = 0.99**							

Variable	**Body Mass Index**				**P^2**		**Q^2**		**Ti**		**Ti^2**	
	P [Yes]		**Q [No]**		**R_1**	**R_2**	**R_1**	**R_2**	**$R_1 \sum R_2$**		**$R_1 \sum R_2$**	
	R_1	**R_2**	**R_1**	**R_2**					**P**	**Q**	**P**	**Q**
1	36	35	14	15	1296	1225	196	225	71	29	5041	841
2	42	41	08	09	1764	1681	64	81	83	17	6889	289
3	48	47	02	03	2304	2209	04	09	95	05	9025	25
4	40	39	10	11	1600	1521	100	121	79	21	6241	441
5	33	32	17	18	1089	1024	289	324	65	35	4225	1225
6	38	37	12	13	1444	1369	144	169	75	25	5625	625
[n=6]	**$\sum P = 468$**		**$\sum Q = 132$**		**$\sum P^2 = 18526$**		**$\sum Q^2 = 1726$**		**$\sum Ti^2 =$**		**37046**	**3446**
	$[\sum P]^2 = 219024$		**$[\sum Q]^2 = 17424$**		***Reliability = 0.99**							

Table 3. Knowledge about knowing and monitoring of vital sign of Blood Pressure [n=150]

V.	Variable-One: Blood Pressure	P [Yes]	%	[x-X]	$[x-X]^2$	Q [No]	%	[y-Y]	$[y-Y]^2$
1	Do you know thatBlood Pressure [BP]as one of the vital signscan be linked to the development of low arterial pressure causing eating disorders, particularly anorexia nervosa and bulimia nervosa?	98	65.3	-5.5	30.25	52	34.7	5.5	30.25
2	Do you know that Blood Pressure [BP] as one of the vital signs can be linked to the development of low arterial pressure, especially low pulse pressure, causing a sign of shock and contributes to and reflects decreased perfusion?	110	73.3	6.5	42.25	40	26.7	-6.5	42.25
3	Do you know that Blood Pressure [BP] as one of the vital signs can be linked to the development of too low pressure causing hypotension, with a medical concern if it causes signs or symptoms, such as dizziness, fainting, or in extreme cases, shock?	100	66.7	-3.5	12.25	50	33.3	3.5	12.25
4	Do you believe that Blood Pressure [BP] as one of the vital signs can be linked to high pressure causing hypertension, which can speed up ageing process amongst athletes if not known and monitored?	125	83.3	21.5	462.25	25	16.7	-21.5	462.25

5	Do you know that the loss of the normal fall in Blood Pressure [BP]as one of the vital signs at night is associated with a greater future risk of cardiovascular disease?	80	53.3	-23.5	552.25	70	46.7	23.5	552.25
6	Do you know that in the elderly, loss of the normal fall in Blood Pressure [BP]as one of the vital signs tends to be above the normal adult range, largely because of reduced flexibility of the arteries?	108	72	4.5	20.25	42	28	-4.5	20.25
[n=6]	**P/YesMean Score = 103.5 and SD Score = 13.7** **Q/NoMean Score = 46.5and SD Score = 13.7**	**$\sum P$ = 621**		**$\sum[x\text{-}X]^2$ = 1119.5**		**$\sum Q$ = 279**		**$\sum[y\text{-}Y]^2$ = 1119.5**	

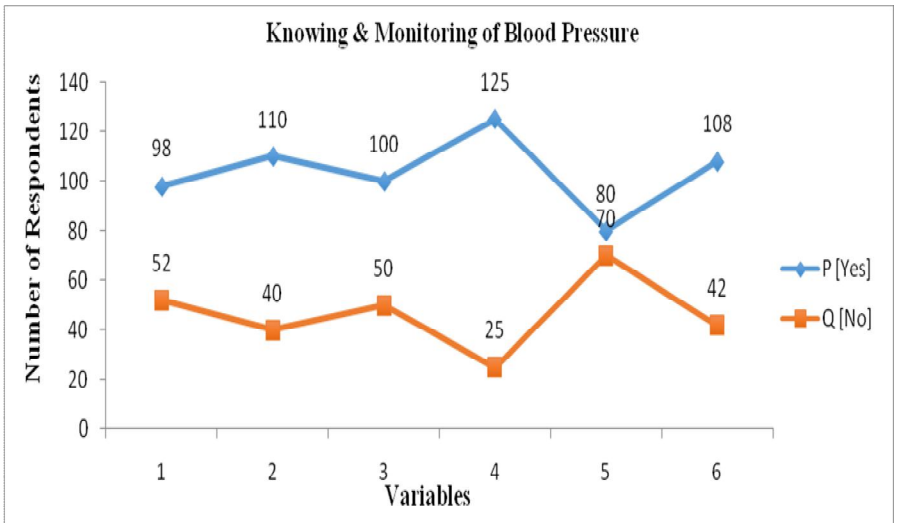

Figure 1. Knowledge about knowing and monitoring of vital sign of Blood Pressure [n=150]

Table 4. Dependent t-test (t) analysis about knowing and monitoring of vital sign of Blood Pressure [n=150]

Variable	Blood Pressure		D [P-Q]	D^2
	P [Yes]	Q [No]		
1	98	52	46	2116
2	110	40	70	4900
3	100	50	50	2500
4	125	25	100	10000
5	80	70	10	100
6	108	42	66	4356
***[n=6]**	***$[\sum D]^2$ = 116964**	***df = 5**	*** $\sum$D = 342** ***t = 4.666**	***$\sum D^2$ = 23972** ***c = 2.571**

Table 5. Knowledge about knowing and monitoring vital sign of Heart Rate [n=150]

V.	Variable-Two: Heart Rate	P [Yes]	%	[x-X]	$[x-X]^2$	Q [No]	%	[y-Y]	$[y-Y]^2$
1	Do you know that Arrhythmias are abnormalities of the heart rate [HR] sometimes felt as palpitations, which produce more serious symptoms of lightheadedness, dizziness and fainting?	86	57.3	-22	484	64	42.7	22	484
2	Has it occurred to you that knowing and monitoring your heart rate [HR] as one of the vital signs can minimize the speed of ageing process amongst athletes?	118	78.7	10	100	32	21.3	-10	100
3	Are you aware that athletes prone to the attack of heart rate [HR]as one of the vital sings suffer from chest pain or chest discomforts?	120	80	12	144	30	20	-12	144

4	Do you believe that athletes prone to the attack of heart rate [HR] as one of the vital signs can speeds up their ageing process?	130	86.7	22	484	20	13.3	-22	484
5	Do you know that athletes prone to the attack of heart rate [HR] as one of the vital signs are at risk of pain in the arm[s], back, neck, or jaw?	94	62.7	-14	196	56	37.3	14	196
6	Do you know that athletes prone to the attack of heart rate [HR] as one of the vital signs are also at risk ofshortness of breath, fatigue, stomach pain, nausea or lightheadedness, and sweating?	100	66.7	-8	64	50	33.3	8	64
[n=6]	**P/YesMean Score = 108and SD Score = 15.7** **Q/NoMean Score = 42and SD Score = 15.7**	**$\sum P$ = 648**		**$\sum[x\text{-}X]^2$ =1472**		**$\sum Q$ = 252**		**$\sum[y\text{-}Y]^2$ =1472**	

Figure 2. Knowledge about knowing and monitoring vital sign of Heart Rate [n=150]

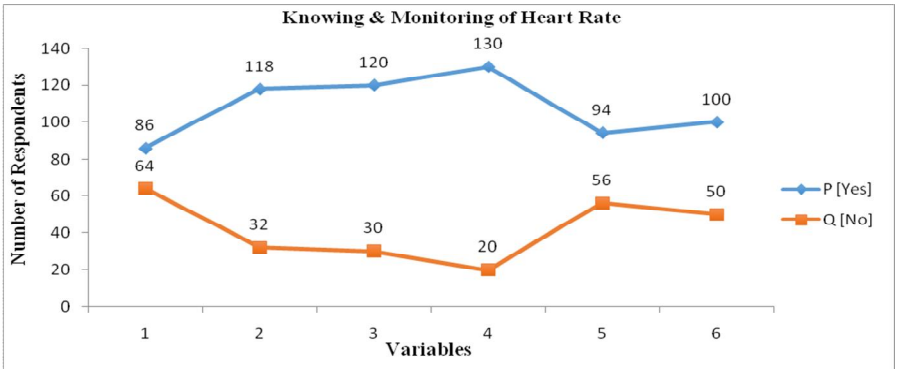

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Table 6. Dependent t-test [t] analysis of about knowing and monitoring vital sign of Heart Rate [n=150]

Variable	Heart Rate		D	
	P [Yes]	Q [No]	[P-Q]	D^2
1	86	64	22	484
2	118	32	86	7396
3	120	30	90	8100
4	130	20	110	12100
5	94	56	38	1444
6	100	50	50	2500
			*** $\sum D = 396$**	*** $\sum D^2 = 32024$**
***[n=6]**	*** $[\sum D]^2 = 156816$**	***df = 5**	***t = 4.711**	***c = 2.571**

Table 7. Knowledge about knowing and monitoring vital sign of Body Mass Index [n=150]

V.	Variable-Three: Body Mass Index	P [Yes]	%	[x-X]	$[x-X]^2$	Q [No]	%	[y-Y]	$[y-Y]^2$
1	Do you know that overweight and obese athletes or individuals under the vital sign of body mass index [BMI] are at an increased risk of hypertension?	105	70	1.8	3.24	45	30	-1.8	3.24
2	Do you believe that overweight and obesity under the vital sign of body mass index [BMI]can speed up ageing processamongstathletes?	135	90	31.8	1011.24	15	10	-31.8	1011.24
3	Are you aware that athletes prone to overweight and obesity under the vital sign of body mass index [BMI]suffer fromdiseases like coronary heart disease?	92	61.3	-11.2	125.44	58	38.7	11.2	125.44
4	Knowing and monitoring of vital signs like body mass index [BMI]; can this minimize the speed of ageing process amongst athletes?	118	78.7	14.8	219.04	32	21.3	-14.8	219.04
5	Do you know thattype II diabetes and stroke are also increased risk factors under the vital sign of body mass index [BMI]for overweight and obese athletes?	89	59.3	-14.2	201.64	61	40.7	14.2	201.64
6	Do you also know that gallbladder disease and osteoarthritis are increased risk factors under the vital sign of body mass index [BMI] for overweight and obese athletes?	80	53.3	-23.2	538.24	70	46.7	23.2	538.24
[n=6]	**P/YesMean Score = 103.2 and SD Score =18.7** **Q/NoMean Score = 46.8 and SD Score =18.7**	**$\sum P$ = 619**		**$\sum [x-X]^2$ =2098.**		**$\sum Q$ = 281**		**$\sum [y-Y]^2$ =2098.**	

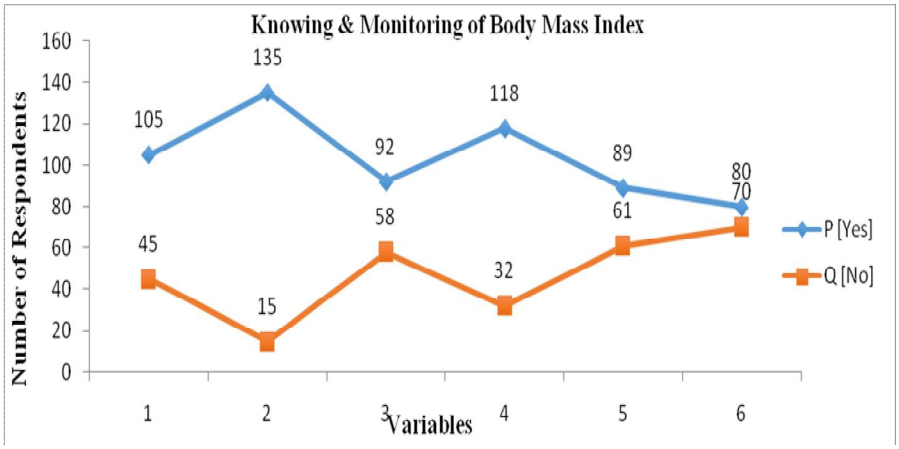

Figure 3. Knowledge about knowing and monitoring vital sign of Body Mass Index [n=150]

Table 8. Dependent t-test (t) analysis of knowing and monitoring vital sign of Body Mass Index [n=150]

Variable	Body Mass Index		D	D^2
	P [Yes]	Q [No]	[P-Q]	
1	105	45	60	3600
2	135	15	120	14400
3	92	58	34	1156
4	118	32	86	7396
5	89	61	28	784
6	80	70	10	100
***[n=6]**	***$[\sum D]^2$ = 114244**	***df = 5**	*** $\sum$D = 338** ***t = 3.368**	***$\sum D^2$ = 27436** ***c = 2.571**

Discussion

The survey only examined the knowledge of University Athlete about knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI] as preventive strategy in reducing early and unsuccessful ageing cased at Njala Campus. With an increasing effort by researchers in a bid of seeking possible and vital solutions in reducing early and unsuccessful ageing in persons, *Schriger, D. L. (2007)* reported that, blood pressure, heart rate, body temperature and body mass index among others are measures of vital signs, that varies according to a person's age, weight, gender and overall health taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward recovery. Statistical instrument used: Percentage [%], Dependent t-test [t], Standard Deviation, Mean, Tabulated Frequency Distribution and Chart were comparatively used in the analysis and testing of the findings at level of significance $p<0.05$.

In discussing the objective of the survey aimed at University Athletes knowledge bout knowing and monitoring of vital signs of Blood Pressure (BP), Heart Rate (HR) and Body Mass Index (BMI) as primary preventive strategy in reducing early and unsuccessful ageing, cased at Njala Campus, the findings were of great significant with positively skewed values for all the variables measuredas tabled in 4, 6 and 8, [t-values of 4.666, 4.711 and 3.368] when tested at $p < 0.05$. Knowing and monitoring of vital sign of blood pressure at home as positively skewed variable in one of the findings, will help maintained blood pressure state of equilibrium among persons (University Athletes) as put forward by *Chobanian, A. V. et al (2003)* which state that, knowing and monitoring of blood pressure will improve hypertension management and monitor the effects of lifestyle changes and medication related to blood pressure. However, ambulatory monitoring according to *Shimbo, D. et al. (2007)* is recommended for most patients at home before the start of antihypertensive drugs. In the same vein, *Gottdiener, J. S. et al (2002)*reported that, shock as a main factor of blood pressure is a complex condition, which leads to critical decreased perfusion leading to the loss of blood volume and pooling of blood within the veins reducing adequate return to the heart and/or low effective heart pumping causing lightheadedness, dizziness, and weakness or fainting. Also, skewed positively in the above finding is the knowing and monitoring of heart rate, which according to *Karvonen, J. et al. (1988),* is not a stable value and it increases or decreases in response to the body's need in a way to maintain equilibrium (basal metabolic rate) between requirement and delivery of oxygen and nutrients. The normal SAN firing rate is affected by autonomic nervous system activity: sympathetic stimulation increases and parasympathetic stimulation decreases the firing rate. Regarding body mass index, the result was also positively skewed as indicated in the responses of the participants though according to *Schneider, H. J. et al. (2010),* in their 2010 study that followed 11,000 subjects for up to eight years, BMI is not a good measure for the risk of heart attack, stroke or death due to its simplicity. Nonetheless, looking at the responses tabled in 3, 5 and 7 and figured in 1, 2 and 3 above, the findings indicate a highly positive skewed view of University Athletes knowledge bout knowing and monitoring of vital signs of Blood Pressure (BP), Heart Rate (HR) and Body Mass Index (BMI) as primary preventive strategy in reducing early and unsuccessful ageing cased at Njala Campus, as proved in their respective scores of percentages, mean and standard deviation.

Conclusion

In the conclusion summary, the survey only looked at the assessment of University Athletes knowledge about the knowing and monitoring of vital signs of blood pressure [BP], heart rate [HR] and body mass index [BMI], as preventive strategy in reducing early and unsuccessful ageing and recommend as necessary. As embedded in the findings above with special reference to the t-scores, percentage scores, and mean scores, the entire results were skewed positively leaving undeniable justification about University Athletes knowledge in knowing and monitoring of vital signs of Blood Pressure (BP), Heart Rate (HR) and Body Mass Index (BMI) as primary preventive strategy in reducing early and unsuccessful ageing cased at Njala Campus. This according to *Muffuli, et al. (2003)* is referred to as primary prevention knowledge in reducing progressive early and unsuccessful ageing among athletes favouring active and healthy ageing.

The survey recommends thus: That further research be carried out about other areas of vital signs perhaps with more variables and greater number of participants to help deepened the knowledge of athletes in that direction and for a better generalization of findings. Also, that University Athletes should be more proactive in their frequent home monitoring and evaluation in a way to establish a state of equilibrium regarding vital signs which according to report from, *National Early Warning Score Development and Implementation Group (2012),* are measurements taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward

recovery. And that training workshops be made readily available to University Athletes, cased at Njala Campus in the area of knowing and monitoring of vital signs of Blood Pressure (BP), Heart Rate (HR) and Body Mass Index (BMI) as primary preventive strategy in reducing early and unsuccessful ageing.

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