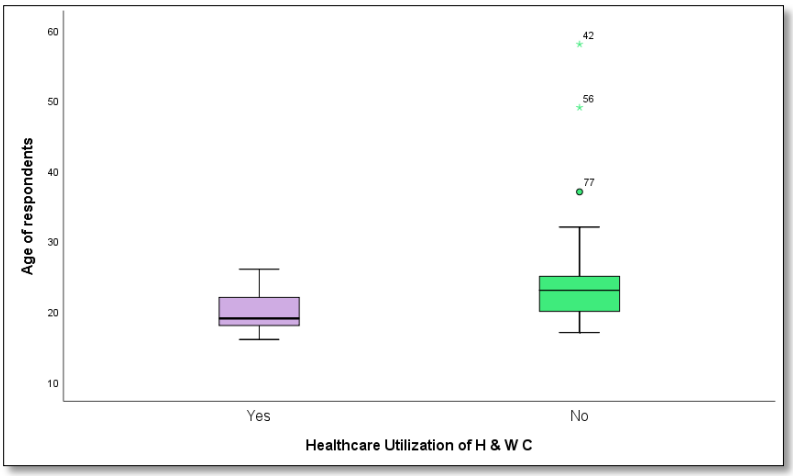

Figure 6. Healthcare utilization of H&WC by age of respondents.

Table 2 presents a cross tabulation between healthcare utilization of H&WC and the gender distribution of the sampled respondents. Although no significant statistical relationship between healthcare utilization of the H&WC and the gender of the respondents (χ^2 (df=1)=1.767, P=0.184), 20.6% (n=14) of the females were first time healthcare users compared to 35% (n=7) of males.

Table 2. Healthcare utilization of H&WC by gender.

Details	Gender		Total
	Male	Female	
Healthcare utilization of H&WC	**n (%)**	**n (%)**	**n (%)**
First time users	7 (35.0)	14 (20.6)	21 (23.9)
Repeated users	13 (65.0)	54 (79.4)	67 (76.1)
Total	20	68	**88**

A stem-and-leaf plot is used to present the responses of the respondents on the follow-up question of 'How often in a semester do you visit [H&WC]?" **(Figure 7)**. Thirty-three respondents indicated once, which represents 52.4% of the repeated customers compared to 24 who stated twice (i.e., 38.1%) and 7.9% mentioned at least thrice.

Stem-and-Leaf Plot

Frequency Stem & Leaf

1.00 0.0

0.00 0.0

33.00 1.000000000000000000000000000000000

0.00 1.

24.00 2.000000000000000000000000

0.00 2.0

3.00 3.000

2.00 Extremes (>=4.0)

Stem width: 1

Each leaf: 1 case(s)

Figure 7. Stem-and-leaf plot of frequency of utilizing H&WC for semester.

This study has provided information/evidence on health conditions of workers and students at tertiary a co-educational institution **(Table 3)**. Almost 4 out of every 10 respondents who visited the H&WC between September 2018 and February 2019 did so because of respiratory conditions (i.e., asthma). Hypertensive conditions accounted for 6.3% of healthcare utilization.

Table 3. Health conditions.

Details	N (%)
Arthritis	4.7 (3)
Asthma (respiratory conditions)	38.0 (27)
Hypertension	6.3 (4)
Heart disease	3.3 (2)
High cholesterol	1.6 (1)
Sickle Cell	3.2 (2)
Other	7.4 (2)

The health status of workers and students who utilized the H&WC between August 2018 and February 2019 are shown on a bar graph **(Figure 7)**. Fifty-seven and five tenths per cent of the sampled respondents indicated at least good health (n=50) compared to 2.3% (n=2) who mentioned poor health status.

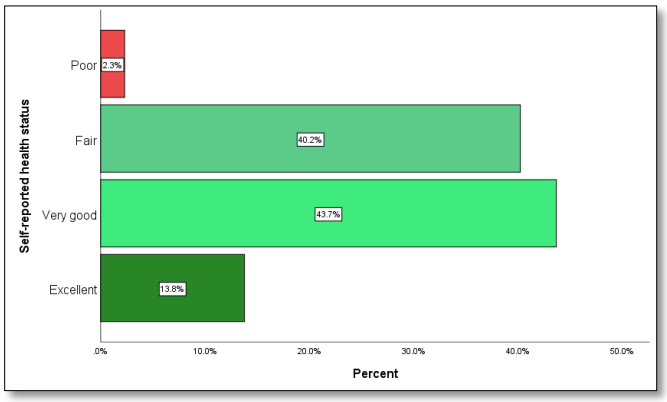

Figure 8. Self-reported health status of respondents.

When the respondents were asked "Compared to one year ago, how would you rate your health in general now?" the responses are depicted in a bar graph **(Figure 8)**. Only 12.3% of the sampled respondents indicated that their health status currently has deteriorated from 12 months ago compared to 28.3% who stated at least somewhat better than the previous year.

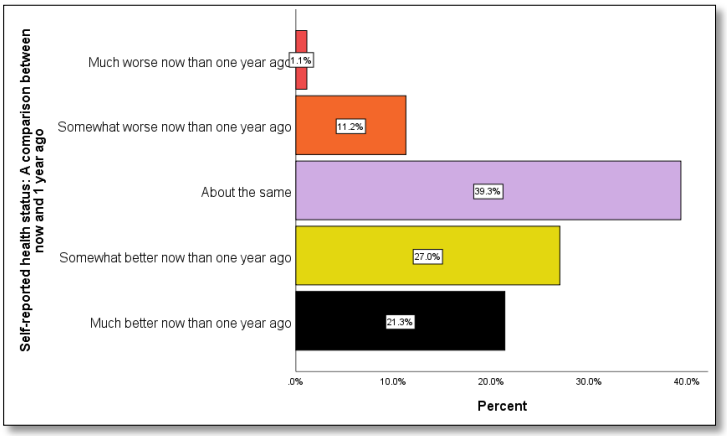

Figure 9. A comparative response of health status currently to 12 months ago.

Service quality index

For this study, an examination was made of the variables that are likely to construct a called Service Quality Index. Reliability testing was conducted on the Service Quality Index and there was a Cronbach alpha of 0.845. The Service Quality Index was constructed of using 5 Likert scale items **(Appendix B)**. Based on the high Cronbach alpha value, the items are likely to be used to measure Service Quality. However, this is not sufficient to determine the appropriateness of an index and as such Principal Component Analysis can clarify this situation. **Table 4** presents the descriptive statistics for the 5 Likert Scale items and they revealed mean scores and standard deviations for each item. Based on the mean values, the minimum value is 3.53, which indicates that the items are appropriate for PCA. Furthermore, normality test was conducted on all the items and it was revealed that they are normally distributed **(Table 5)** and suitable for PCA.

Table 4. Item statistics.

	Mean	Std. Deviation	N
I receive prompt service at the Health and Wellness Centre	3.91	1.015	81
I would attend the Health and Wellness Centre any day if I am experiencing ill-health	3.77	1.277	81
The staffers provide high quality customer service at the Health and Wellness Centre	4.09	0.938	81
I believe the medical practitioner is competent	3.94	1.029	81
If I am ill, I visit the Health and Wellness Centre first	3.53	1.305	81

Table 5. Tests of normality.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I receive prompt service at the Health and Wellness Centre	0.324	81	0.000	0.790	81	0.000
I would attend the Health and Wellness Centre any day if I am experiencing ill-health	0.227	81	0.000	0.835	81	0.000
The staffers provide high quality customer service at the Health and Wellness Centre	0.241	81	0.000	0.813	81	0.000
I believe the medical practitioner is competent	0.240	81	0.000	0.822	81	0.000
If I am ill, I visit the Health and Wellness Centre first	0.208	81	0.000	0.874	81	0.000

a. Lilliefors Significance Correction

Table 6 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.797, exceeding the recommended value of 0.6 and the Bartlett's Test of Phericity [34] reached statistical significance (<0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for PCA as it can be deduced that they reject the null hypothesis (i.e., the items are not suitable to assess Service Quality Index) as/that there is insufficient correlation between the variables for PCA.

Table 6. KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.797
Bartlett's Test of Sphericity	Approx. Chi-Square	169.728
	Df	10
	Sig.	<0.0001

The inter-correlations among the various sub-item in the index was at most moderately related and this suggests that this was somewhat ideal to evaluate the concept of Service Quality **(Table 7)**.

Table 7. Correlation Matrix[a].

		Q12	Q13	Q14	Q15	Q16
Correlation	**Q12**	1.000	0.543	0.664	0.629	0.413
	Q13	0.543	1.000	0.570	0.512	0.623
	Q14	0.664	0.570	1.000	0.588	0.371
	Q15	0.629	0.512	0.588	1.000	0.304
	Q16	0.413	0.623	0.371	0.304	1.000
Sig. (1-tailed)	**Q12**		0.000	0.000	0.000	0.000
	Q13	0.000		0.000	0.000	0.000
	Q14	0.000	0.000		0.000	0.000
	Q15	0.000	0.000	0.000		0.003
	Q16	0.000	0.000	0.000	0.003	

a. Determinant=0.112

Principal Component Analysis with varimax rotation was conducted to determine that all questions were loading on the same component. The results show the 5 Likert Scale items loaded on one component **(Table 8 and Figure 10)**. In fact, the first component accounts for 62.07% of the total variance with an Eigenvalue of 3.104.

Table 8. Total variance explained.

Components	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.104	62.071	62.071	3.104	62.071	62.071
2	0.832	16.632	78.702			
3	0.410	8.202	86.904			
4	0.365	7.309	94.213			
5	0.289	5.787	100.000			

Extraction Method: Principal Component Analysis

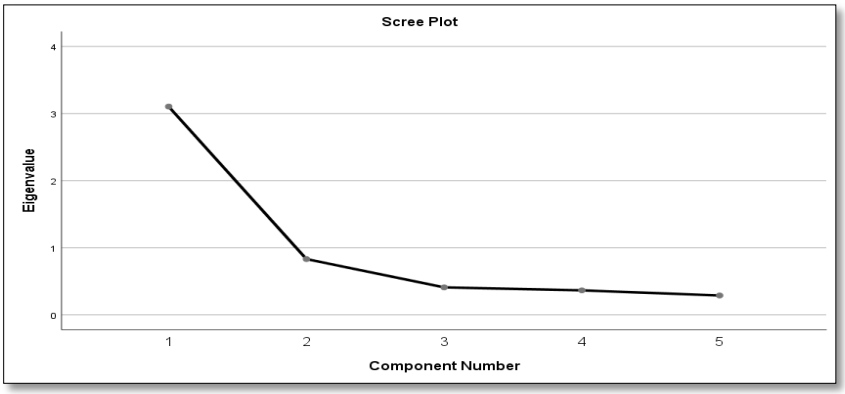

Figure 10. Screen plot of 5 likert scale items that assess service quality.

Communalities show the amount of variance accounted for in the component captured by the factor solution **(Table 9)**. That is, how much of the variance in each of the original variables is explained by the extracted factor.

Table 9. Communalities.

	Initial	Extraction
Q12	1.000	0.699
Q13	1.000	0.681
Q14	1.000	0.676
Q15	1.000	0.604
Q16	1.000	0.443

Extraction Method: Principal Component Analysis

The PCA examination has establish that the 5 Likert scale items are suitable and appropriate to assess a single construct called Service Quality offered by H&WC. The Service Quality offered by H&WC is high (median=4 out of 5) **(Table 10)**. This is further explored in a Stem-and-Leaf plot depicted in **Figure 11**.

Table 10. Descriptive statistics of service quality offered by H&WC.

			Statistic	Std. Error
Service Quality Index	Mean		3.8080	0.09642
	95% Confidence Interval for Mean	Lower Bound	3.6163	
		Upper Bound	3.9996	
	Median		4.0000	
	Variance		0.818	
	Std. Deviation		0.90452	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Skewness		-0.984	0.257
	Kurtosis		1.044	0.508

A stem-and-Leaf plot shows patients' perception on the Service Quality offered by H & WC **(Figure 11)**. **Figure 11** depicts that one in every 10 patients who were served by H & WC in the studied period (October 2018 to January 2019) is dissatisfied with the service deliverables compared to 51.1% who were at least satisfied with service offerings by staffers at H&WC.

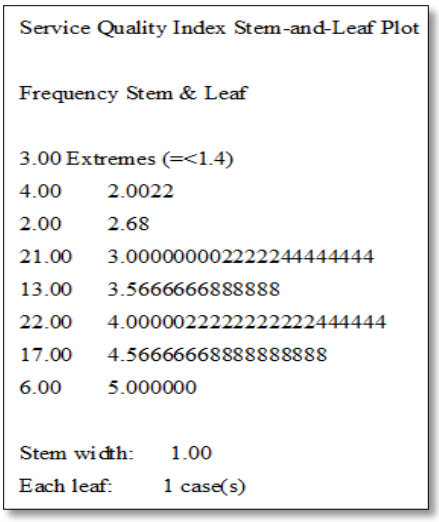

Figure 11. Stem-and-leaf plot of service quality offered by H&WC.

Rating of service deliverables

The responses of respondents on the matter of rating the various services provided by H&WC are presented in **Table 11**. The respondents gave low ratings for the provision of the following services: Blood sugar checks; pre-employment medicals, incision and draining of abscesses, treatment of sinus infection, and chronic diseases management. However, very high ratings were awarded for the provision of particular services - gynecological issues, basic asthma care, vision screening and vital signs checks.

Table 11. Rating the following services offered by the Health and Wellness Centre.

Items	1	2	3	4	5
1. Vital signs checks (i.e., blood pressure, pulse, temperature)	1.4	18.3	31.0	49.3	-
2. Basic asthma care	3.9	3.9	29.4	41.2	21.6
3. Blood sugar checks	1.9	46.2	26.9	25.0	-
4. Vision screening	1.8	3.6	41.1	33.2	19.6
5. Annual Medical examinations	1.9	32.7	38.5	26.9	-
6. Insurance medicals	2.1	37.5	35.4	25.0	-
7. Pre-Employment medicals	4.7	53.3	22.2	20.0	-
24. PAP-smear and pelvic examinations	2.4	4.8	45.3	26.3	21.4
25. Pregnancy test	2.4	9.8	53.7	19.5	14.6
26. Contraceptive advice	2.5	7.5	52.5	17.5	20.0
27. Incision and draining of abscesses	7.5	40.0	22.5	30.0	-
28. Treatment of sinus infection	6.8	43.2	22.7	27.3	-
29.Abdominal pain treatment	2.4	2.4	53.7	22.0	19.5
30. Chronic disease management (i.e., hypertension, diabetes, etc.)	2.4	53.7	29.3	14.6	-
31. Job related injuries	2.4	2.4	46.3	29.0	19.6
32. Gynecological issues	-	-	29.8	42.6	27.4

***Key**: 1=Very poor, 2=Poor, 3=Moderate, 4=Good, 5=Excellent*

DISCUSSION AND CONCLUSION

The World Health Organization (WHO) has provided an expanded definition of health that has infiltrated how the concept is viewed and patient care is addressed, particularly from subjective viewpoint. Following the works of Dr. Engel [11-15] psychologist Dr. Diener began a discourse of non-quantitative of health [16]. Because Diener accepted and believed that health is more than the absence of diseases or mortality, he forwarded that it can be assessed from a subjective perspective. This subjective perspective included happiness, life satisfaction, and self-reported health [16,17].

Initially, demographers, actuaries and economists, include WHO used mortality to determine the life expectancy of a population/people. Hence, life expectancy a quantitative approach was used to determine health status of a population/people. This dates back to late seventeenth century in the work of John Graunt, which was entitled the Bills of Mortality [35] Even to this day, demographers, United Nations, and many statistical institutions use life expectancies to evaluate the health status of a population [36] This is an objectification of the concept of health [36] In fact, Gaspart provided arguments that support the rationale behind the objectification of well-being [31]. His premise for objective quality of life is embedded within the difficulty as it relates to consistency of measurement when subjectivity is the construct of operationalization. This approach takes precedence because an objective measurement of concept is of exactness as non-objectification; therefore, the former receives priority over any subjective preferences. He claimed that for well-being to be comparable across individuals, population and communities, there is a need for empiricism. The fact is well-being depends on both the quality and the quantity of life lived by the individual, which supports a subjective assessment [24].

The reality is health must be evaluated by more than a quantitative approach .Because this is in keeping with a narrow perspective on the concept. Like the WHO's broad definition of health is it physical, social and psychological wellbeing. This means that health is a biomedical, social and psychological process. Dr. Buzina (Caribbean Food and Nutrition Institute), admits that well-being is fundamentally a biomedical process [37]. This conceptual framework is coming from the Newtonian approach of basic science as the only mechanism that could garner information and that empiricism was the only apparatus that establishes truth or fact. It is still a practice and social construction that numerous scholars and medical practitioners have and continue to advocate the way ahead. Simply put, physical health is equated to well-being (or health or wellness). If such a viewpoint holds any dominance in contemporary societies, then are saying that conditions such as the death of an elderly's lifelong partner; a senior citizen taking care of his/her son/daughter who has HIV/AIDS; an aged person not being able to afford his/her material needs; someone older than 64 years who has been a victim of crime and violence and continues to be a victim; seniors who reside in volatile/violate areas who live with a fear of the worst happening, the inactive aged, and generally those who have retired with no social support are equally sharing the same health status as elderly who have not on medication because they are not suffering from biomedical conditions to be given drugs?

Although Crisp lamented the elusiveness of the WHO's definition of health, life expectancy is agreed by scholars as being narrow and only focusing on physical well-being. It is because of this limitation that self-reported health holds more width and validity in the health discourse. This is affirmed in a study carried out by Lima & Nova, that found happiness, general life satisfaction, social acceptance and actualizations are all directly related to GDP per capita for a geographic location [37]. Even though in Europe these were found not to be causal, income provides some predictability of subjective well-being more so in poor nations/countries than in wealthy nations [38]. This takes the discussion into a subjective area and its usage to assess health status of a population.

For this study, a subjective viewpoint was taken to the health discourse as this would provide critical information on the health status of workers and students. The current research reveals that the general health status of workers and students are relatively high; but there are still incidences of unhealthy workers and students. In fact, 2.3% of those who visited the Health and Wellness Centre (H&WC) at the tertiary co-educational university from September 2018 to January 2019 are unhealthy, with 40.2% being moderately healthy. The ill-health of people who visited the H&WC include asthma, hypertension, heart disease, arthritis, high cholesterol and sickle cell.

In this research, of the sampled respondents, 38% of them had respiratory conditions. 63% of the asthma patients indicated that the service provided by H&WC was at least good, suggesting that the service deliverables are meeting their health needs. However, the issue of locality must be brought into this discussion because of the kind of health condition. With some 59.3% of the healthcare users to H&WC being from departments on the Main Campus, there is the likelihood of danger if many of those with respiratory conditions become ill and they are far away from the health centre. Another issue is the lengthy stair to enter the H&WC with some patients having respiratory as well as heart conditions. Currently, 3.3% of those who utilize the services of H&WC for September 2018 to January 2019 are diagnosed with heart disease. A health condition that is potentially challenging for patients with arthritic disease, which affects some 5% of visitors to H&WC.

The locality is among the factors that account for the poor service quality rating given to H&WC. Fifty-six and one

tenth per cent of those with chronic health conditions indicated that they are dissatisfied with the service offered by staffers and locality of H&WC. An extrapolation can be made from these findings 'one in every 10 patients who were served by H&WC in the studied period (September 2018 to January 2019) is dissatisfied with the service delivered by the H&WC staffers. Workers and students with chronic diseases are voicing their concerns about the location of H&WC through service quality dissatisfaction. The issue of the location of H&WC may be a concern for those with chronic conditions as the timing to get to the healthcare professionals may account for the difference between life and death.

In concluding, the H & WC is a high service quality provider (i.e., service quality index=3.8 out of 5) and this speaks great/volumes about the health professionals and general staffers in this unit. Despite the sterling contribution of the workers at H&WC, with the number of repeated customers to that unit (76.1%) and the number of workers and students with chronic conditions that utilize its services, policy makers must give urgent attention to issues of workers and students at the institution.

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