Relationship between Worship Time and Attendance in Orthodox Church, Southern Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author OCE designed and developed the concept notes, collated all requisite data and compiled manuscript. Author CON managed the literature searches and Author AOU were performed the statistical analysis and managed the analyses of the study. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The perturbation in members worship attendance data with respect to service duration and a general impression among members, that worship attendance recorded at sessional services, was due to the worship duration, gave rise to this investigative research. There has never been a study in this relation of worship time and members attendance in the church. This study therefore seeks to clarify thinking, in the service time and attendance relationships among the worshipers. To satisfy the needs of the relationships, a correlation analysis was conducted using available data from 62weekly service observations for an orthodox church in south-south Nigeria, by applying parametric and nonparametric correlation methods. The correlations coefficient were obtained by using the Pearson, Kendall and Spearman correlation methods which showed 63, 53 and 66% correlations respectively as well as a significant value of 0.000 result for each individual methods. The results show that there is a significant relationship that exists between both variables under

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consideration. This insightful and informative research outcome will disabuse or soothe the minds of these members as well as guide the church leadership's poise in membership growth, development and management of gospel dissemination across sub-Saharan Africa.

Keywords: Orthodox Christians; attendance; worship duration; correlation; significance.

1. INTRODUCTION

Orthodox defined as adherence to correct or accepted creeds, especially in religion. In the Christian sense, this means, conforming to the Christian faith as represented in the creeds of the early Church. The oldest Christian churches, fall within this category. In an Orthodox church, fanaticism is mostly found, in that members tend to derive special joy and satisfaction from keeping to the accepted beliefs and creeds. Often times, members imbibe these beliefs from tender ages which tend to shape their personal values as they grow in life. Several features are common within each individual Orthodox Church ordinances. Some of these features include: the holy Eucharist, book of Common Prayer, observing positions for different parts of worship; (in sitting, standing or kneeling) vestments for different categories of clergies and ministers in variations of colour and styles depicting the same thing globally, same liturgical calendars of lent, advent, epiphany, Pentecost and other orthodox celebrations in the church and lastly, having the same bible readings which are usually chosen for their appropriateness for each season. Cultural differences in different parts of the world tend also to impact on various norms and practices of these orthodox churches despite their practice of same creed and ritual [1]. A major differing factor in the orthodox church of the western world and that of the southern Nigeria is in the time of worship. While the western world considers and adjusts its worship duration in line with the time-based remuneration for paid jobs and services by its short length of time of worship, this practise is not obtainable in several Nigerian worship centres. It was viewed that worship has become too complicated and time-consuming, leaving irregular church goers feeling confused and excluded [2]. Available weekly attendance figures for 2009 showed a drop to 1.131 million as against 1.145million in 2008, for the sixth consecutive year's record while average Sunday attendance dropped also from 960,000 to 944,000 in the USA [3]. This study, considered an orthodox church in southern Nigeria and analysed the role of worship duration with respect to church attendance, and in so doing, establish a correlation between the duration time and members attendance variables.

2. REVIEW OF LITERATURE

Interestingly an online blog, opined that Christians began to spread their influence due to English missionaries who were able to convert the Igbo's and most of the Yoruba to Anglicanism, and that since then, the British authorities forbade missionaries to preach to Northern ethnic groups. In that colonial period, Hausa Muslims remained without any trace of the religious influence of the Europeans [4].

The studies and polls conducted have shown a consistent decline in the rate of church attendance across the globe especially in the western world. It was suggested that the frequency of attendance is the major reason for decline in church attendance in America and further suggested ways of addressing it [5].

The key factor for attendance decline in adults, stem from impact of quality of leadership in the church as observed from poll results gathered, and that much attention is not given to this. And also that attendees usually quit due to church leaders but not the church. It concluded that the content of sermons as it appeals and applies to church goers is also a key ingredient in attendance. Where these sermons' ability to link religion and life scenarios were rated as the top two factors for attendance as deduced from 75% of worshippers interviewed [6].

An explorative survey conducted, identified the major reasons for attending to church is for closeness to God, for better individuals, and comfort in troubles and sorrows [7]. Whereas 44% who didn't attend churches gave their practice of faiths in order ways as reason, 28% presented their inability to yet discover a place of worship of preference as reason for non-attendance to church in the sample survey.

A study stating that European religiosity is related to religious tradition rather than an East/West dichotomy, was carried out in a cluster analysis of church attendance and religiosity data from 23 countries and which concluded that the potential cause of variation in attendance rates and trends were the previously introduced religious traditions [8].

Asopined, that there exists a relatively high attendance as demonstrated by the predominantly Catholics of Poland and Romania in comparison with their peers in Western Europe [9]. The Protestant and Orthodox countries are more secular, and that Catholic countries remain more religious [10,11].

Attendance in 10 ten predominantly Orthodox churches in Europe was examined using ESRC East-West Programme data, and which concluded that Catholic countries displayed higher attendance rate than the Orthodox countries, with Poland topping the list [12].

It was also argued that the distinctly high decline rate of attendance in European Catholic countries of Lithuania, were more than that in predominantly Orthodox countries of Belarus, Russia, and Ukraine [13]. She concluded that this distinction is as a result of the ability and desire to educate adherent belief systems and the inability or lack of desire by the Catholic and Orthodox churches respectively.

Various methods have been adopted in measuring and gathering church attendance data. As shown in their study of the problems in measuring diachronic religious behaviour those time-based surveys are more reliable than the traditional surveys [1].

In summary, there are several factors that account for declining church attendance as there appears to be interplay of different facture yet to be exhaustively addressed by various literatures. As revealed that there is no significant difference among the provinces in their levels of records' use and decision-making across the Anglican Church of Nigeria but that a significant positive relationship exists between these two variables. This implies that records use is a good predictor of decision-making [14]. The earlier submission that records provided the most accurate account for a decision or activity over time, added that government had acknowledged benefits in the use of such records in its planning and developmental initiatives [15]. It is on this premise that a correlation analysis of an orthodox church in southern Nigeria is conducted using worship attendance information and worship

duration in a bid to justify it relationship with respect to soaring or decreasing membership. Findings will either support or dispute assumptions on this topic as well as give recommendation on what variables to be monitored/regulated in other to resolve the foreseen challenge.

While there have been fewer research on church attendance within the scope of the country, Nigeria, it was equally observed that the length of time of worship as a factor that could influence the rate of attendance, has never been considered by scholars. This study will present a correlation between the length of worship time and the rate of church attendance of a typical orthodox church in southern Nigeria.

3. MATERIALS AND METHODS

The Orthodox Church under investigation operates two different types of services which are seasonal and combined services. The seasonal services run for three hours (7-10am) and (10am – 1pm) whereas, the combined services are for five hours (8am-1pm) as maybe applicable to church calendar, season and at the leadership's discretion. The attendance data collated is as contained in subsequent week's church worship bulletins and as computed by the ushers. The data used in this analysis was collated from 62 seasonal services chosen at random within two years (from 2018 and 2020) since the public display of data, was adopted by the new church leadership. The correlation analysis was to measure the degree of relationship between the two variables; worship duration and worship attendance and furthermore ascertain the extent of the relation based on the correlation coefficient obtained. The parametric and non-parametric approaches of Karl Pearson, Spearman and Kendall's correlation methodologies were used in analysing the data shown in Table 1. The significance of the correlation coefficient for the worship time and attendance variables was also analysed.

The mathematical illustrations of these methods are as shown in equations (1) (2) and (3) respectively.

$$r = \frac{n\Sigma x_{ij} y_{ij} - \Sigma x_{ij}\Sigma_{ij}}{\sqrt{\left[n\Sigma x_{ij}^2 - \left(\Sigma x_{ij}\right)^2\right]\left[n\Sigma y_{ij}^2 - \left(\Sigma y_{ij}\right)^2\right]}} \qquad (1)$$

Table 1. Table of primary and secondary data compiled for analysis

S/N	Date	Duration (x)	Attendance (y)	Xy	x^2	y^2
1	25/3/18	5	1316	6580	25	1731856
2	1/4/2018	5	1282	6410	25	1643524
3	8/4/2018	5	791	3955	25	625681
4	15/4/2018	3	1049	3147	9	1100401
5	22/4/2018	3	242	726	9	58564
6	29/4/2018	3	852	2556	9	725904
7	6/5/2018	5	1101	5505	25	1212201
8	13/5/2018	3	879	2637	9	772641
9	20/5/2018	3	1002	3006	9	1004004
10	23/9/2018	3	816	2448	9	665856
60	1/2/2020	3	449	1347	9	201601
61	9/2/2020	3	1000	3000	9	1000000
62	16/2/2020	3	321	963	9	103041
	SUM	234	48639	197583	942	46575421

$$\rho = \frac{1 - \left(6\,\Sigma\,d_i^{\;2}\right)}{\left(n\left(n^2 - 1\right)\right)} \quad (2)$$

$$r = \frac{2}{n(n-1)}\sum_{i \triangleleft j}\left(x_i - x_j\right)\left(y_i - y_j\right) (3)$$

Where x and y represent the sets of observations just as n denotes the number of concordant and discordant pairs of observations carried out. These guidelines formed the basis for the resulting outcome as was obtained using Microsoft excel and SPSS in the next section.

4. RESULTS AND DISCUSSION

The table below depicts the primary and secondary data compiled from observations. The corresponding information was extracted and substituted for this analysis.

Fig. 1 shows a scatter plot of the duration and attendance variables which typifies a linear model to be an appropriate model for predicting the response variable (attendance). The model shows that 39.63% of the attendance variable can be explained in the duration variable.

4.1 T-Test

Paired samples student T-test shows the statistical evaluation of the paired variables, namely; duration and attendance to church activities. It shows the mean data duration time to be 3.77 minutes approximately and mean of members attendance variation to be 784.5 units of the number of data variations used, the standard deviation on the duration time is 0.982 minutes approximately and the standard deviation of the members in attendance is 371.486 units approximately. However, the standard error of the mean on the duration time is 0.125 minutes approximately and the standard error of the mean on the members in attendance is 47.179 units approximately. The standard errors of the mean is minimal and the lesser the errors around the mean, the better the variation of the data in predicting the reality in the data.

Table 3 shows the paired samples student T-test for correlations analysis. The duration and attendance variables have a correlation of 0.630 (or 63%), while its significance relationship on the variables is 0.000. This implies that there is a strong relationship between both variables of duration and attendance.

The paired samples student T-test conducted show the differences along the mean, the confidence intervals and the degree of freedom (df) in the data. The confidence interval of the difference among the mean is 95 percent confident level with the possible lowest mean to be -874.909 units approximately and the possible highest mean difference to be -686.543 units approximately. The degree of freedom in the data is 61. However, the significance of the data is 0.000, showing that the data is highly significant. This significance value implies that the data is proper and adequate for the analysis. The parametric correlations of the duration and attendance variables using the Pearson correlations method shows that the variables have a correlation of 0.630 (or 63%) relationship, with a significant value of 0.000. This significant value denotes that the variables have high and significant influence on each other.

The nonparametric correlations analyses of Kendall's tau_b correlation and Spearman's rho correlation were used to validate the parametric correlation of the Pearson correlation in the table. Kendall's tau_b correlation method shows that the variables have a correlation of 0.543 (or 54.3%) relationship, with significant value of 0.000. Spearman's rho correlation method also shows that the variables have a correlation of 0.660 (or 66.0%) relationship and also with a significant value of 0.000. The significant values therefore imply that the variables have high significant impact on each other.
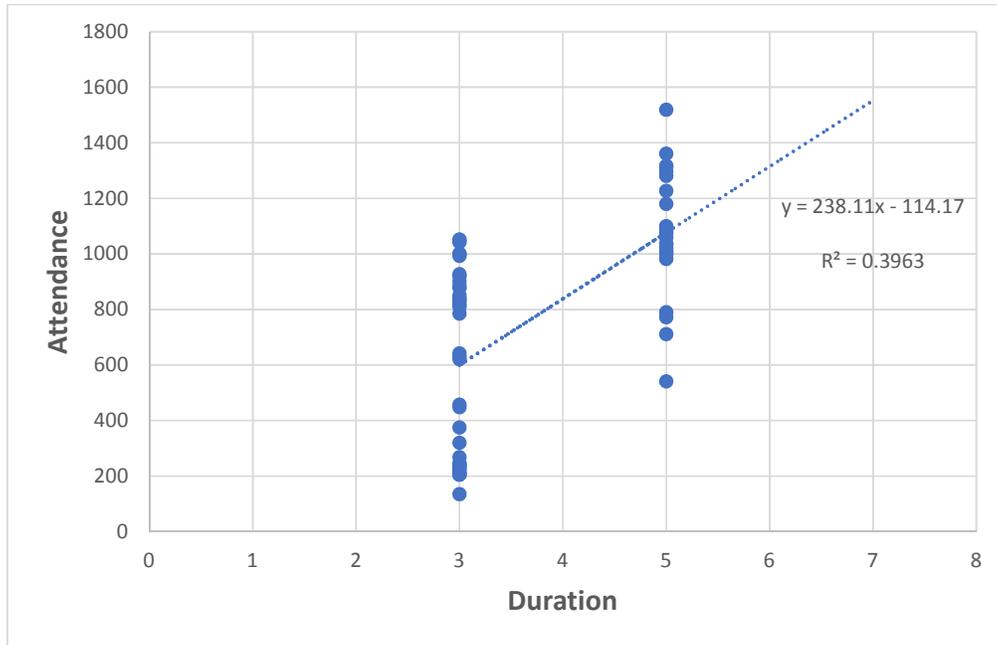

Fig. 1. Scatter plot for worship attendance and service duration

Table 2. Paired Samples Statistics for Duration and Attendance

		Mean	N	Std. deviation	Std. error mean
Pair 1	Duration	3.7742	62	.98212	.12473
	Attendance	784.5000	62	371.48628	47.17880

Table 3. Paired samples correlations analysis

		N	Correlation	Sig.
Pair 1	Duration & Attendance	62	.630	.000

Table 4. Paired samples T-test

	Paired differences					T	Df	Sig. (2-tailed)
	Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
				Lower	Upper			
Duration - Attendance	-780.72581	370.86881	47.10039	-874.90885	-686.54276	-16.576	61	.000

Table 5. Parametric pearson correlation analysis

		Duration	Attendance
Duration	Pearson Correlation	1	.630[**]
	Sig. (2-tailed)		.000
	N	62	62
Attendance	Pearson Correlation	.630[**]	1
	Sig. (2-tailed)	.000	
	N	62	62

Table 6. Nonparametric correlations

			Duration	Attendance
Kendall's tau_b	Duration	Correlation Coefficient	1.000	.543[**]
		Sig. (2-tailed)	.	.000
		N	62	62
	Attendance	Correlation Coefficient	.543[**]	1.000
		Sig. (2-tailed)	.000	.
		N	62	62
Spearman's rho	Duration	Correlation Coefficient	1.000	.660[**]
		Sig. (2-tailed)	.	.000
		N	62	62
	Attendance	Correlation Coefficient	.660[**]	1.000
		Sig. (2-tailed)	.000	.
		N	62	62

5. DISCUSSION OF RESULT

The discussion of the results shows the correlation analyses and other statistical results of the studied variables in Orthodox Church relations. The scatter plot shows the relationship of the variables. The student T-test shows that the analyzed variables a significant to represent what the factors are portraying statistically. The correlation methods applied are parametric and nonparametric correlation methods. The Pearson which is the parametric correlation method was used to analyze the relationship of the variables. The Kendall's and Spearman's nonparametric correlation methods are used to test and to validate the Pearson correlation method. The results of these correlations show that there is a significant relationship between the worship time and the members' attendance of the Orthodox Church with strong correlations of the variables.

6. CONCLUSION

It is intuitive to note that a relationship between worship attendance and service duration has been established. The significant nature and impact of this established relationship is also visible based on results from varied correlation analytical methods adopted, in line with the assessment intended. The test for correlation

coefficient significance obtained is also hypothetically accepted. This research concept and the resulting developments arose from innovative thinking aimed at clarifying allusions and insinuations by worshipers, as well as to guide churches in worship time management and planning for membership growth and sustainability.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Maurizio R, Ettore S. Problems in measuring diachronic religious behavior, or Using Indicators to 'Make a Virtue of Necessity: Case of the Netherlands. Review of Religious Research. 2017;60(1): 133-151, 13644-017-0314-5.
2. Newport F. Church Leaders and Declining Religious Service Attendance; 2018. Available:https://news.gallup.com/opinion/polling-matters/242015/church-leaders-declining-religious-service-attendance.aspx
3. The Telegraph. Church Services need to be shorter, says Bishop; 2011.

Available:https://www.telegraph.co.uk/new
s/religion/8612820/Church-services-need-
to-be-shorter-says-bishop.html

4. Available:http://www.legit.ng/1093692-
orthdox-churches-nigeria retrieved online
on 27th June, 2020.

5. Rainer TS. The number one reason for the
decline in church attendance and five ways
to address it; 2013.
Available:https://thomrainer.com/2013/08/t
he-number-one-reason-for-the-decline-in-
church-attendance-and-five-ways-to-
address-it/

6. Available:http://www.gallup.com/opinion/po
lling-   matters retrieved online on 25th
June, 2020.

7. Pew Research Center. Why Americans Go
(and Don't Go) to Religious Services;
2018.
Available:https://www.pewforum.org/2018/
08/01/why-americans-go-to-religious-
services/

8. Halman L, Pettersson T. Differential
Patterns of Secularization in Europe:
Exploring the impact of religion on social
values. religion in secularizing society.
Leiden. The Netherlands: Brill. 2003;48-
74.

9. Pollack D. "Religiousness Inside and
Outside the Church in Selected Post-
Communist Countries of Central and
Eastern Europe. Social Compass. 2003;
50:321–34.

10. Martin D. A General Theory of
Secularization. Oxford: Basil Blackwell.

11. Martin D. On Secularization: Towards a
Revised General Theory. Burlington, VT:
Ashgate; 2005.

12. Need A, Evans G. Analysing Patterns of
Religious Participation inPost-Communist
Eastern Europe. British Journal of
Sociology. 2001;52:229-48.

13. Titarenko L. On the Shifting Nature of
Religion during the Ongoing Post-
Communist Transformation in Russia,
Belarus, and Ukraine.Social
Compass.2008;55:237–54.

14. Ajiboye BA, Alaniye MK, Adenekan FN.
Availability and use of Records for decision
making in the Church of Nigeria (Anglican
Communion).Library and Philosophy
Practice e-journal, University of Nebraska-
Lincoln; 2019
Available:https://digitalcommons.unl.edu/c
gi/viewcontent.cgi?article=5732

15. Roscoe E. Unwieldy Rules and Default
Practices: Realities of Public Record
Keeping in North Carolina. A Master's
paper for the M.S. in L.S. degree, Carolina
Digital Repository; 2012.
Available: https//cdr.lib.unc.edu/

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