

Religiosity and safety performance: mediating role of safety behaviour

Lebbaeus Asamani

*Department of Education and Psychology, University of Cape Coast,
Cape Coast, Ghana*

Maxwell Asumeng and Adote Anum

*Department of Psychology, University of Ghana, Accra, Ghana, and
Evelyn Twumasi
University of Education Winneba, Winneba, Ghana*

Religiosity and
safety
performance

745

Received 11 June 2020

Revised 10 June 2021

15 April 2022

23 June 2022

7 July 2022

Accepted 15 August 2022

Abstract

Purpose – Safety science research has largely focused on areas such as oil and gas, mining and construction, with a paucity of research in the agricultural sector which constitutes over 60% of the workforce in Ghana. This paper investigated the extent to which religiosity of rice farm workers predicts their safety performance through safety behaviour.

Design/methodology/approach – The authors collected data from 469 respondents, comprising 347 males and 122 females from three large rice irrigation schemes in southern Ghana in a cross-sectional survey, and analysed the data with partial least squares structural equation modelling (PLS-SEM).

Findings – Religiosity had a moderate positive direct relationship with safety behaviour, while safety behaviour had a very weak relationship with safety performance. Also, safety behaviour played a competitive partial mediating role in the relationship between religiosity and safety performance.

Practical implications – The findings led to the conclusion that religiosity is an essential direct antecedent of safety behaviour at work and an indirect antecedent of safety performance. Accordingly, the authors recommend that safety practitioners, managers and supervisors put mechanisms in place to cautiously encourage optional religious programmes that would enable organisational members to get a deeper understanding and knowledge of their religion and promote religious freedom and diversity at the workplace.

Originality/value – This paper has contributed to the debate on the relevance of religiosity at work and occupational safety and health promotion in the African context. This seems to be the only study in Ghana that has investigated how religiosity relates to safety behaviour in production agriculture, specifically, rice farming. Another contribution of this study is the evidence supporting the mediating role of safety behaviour in the relationship between religiosity and safety performance.

Keywords Religiosity at work, Religiosity and safety performance, Religiosity and safety behaviour, Safety behaviour of farm workers

Paper type Research paper

Introduction

Interest in religiosity and spirituality in the workplace is a relatively new area of scientific investigation that has attracted both scholars and practitioners. Voland (2009) noted that every human society has some form of religion. Indeed, Khan and Tantray (2019) asserted that “man as a human being, cannot exist without religion because it is intrinsic in his nature. One cannot isolate religion from the life situation” (p. 6). National surveys in Ghana indicate that only a small percentage of Ghanaians indicated they did not associate with any religion. In the 2010 and 2021 national population and housing surveys, 5.3% and 1.1% respectively of those surveyed indicated that they were not affiliated with any religion (Sasu, 2022). The major religions in Ghana are Christianity, Islam and Traditional religions (e.g. Ghana Statistical Service, 2012; Sasu, 2022).



International Journal of Workplace
Health Management
Vol. 15 No. 6, 2022
pp. 745-760

© Emerald Publishing Limited
1753-8351

DOI 10.1108/IJWHM-06-2020-0096

These religions have norms and values that encourage their members to exhibit good work behaviours and employees take these values and principles to their work, which influence their work behaviour. The Christians, for instance, are encouraged to work conscientiously as presented in the following quotes: "Whatever your hand finds to do, do it with all your might, for in the realm of the dead, where you are going, there is neither working nor planning nor knowledge nor wisdom" (Ecclesiastes 9:10, NIV). They are also encouraged to be obedient and law-abiding. Colossians 3: 22-25 (NIV) for instance states:

Servants, obey in everything those who are your earthly masters not with eyeservice, as men-pleasers, but in singleness of heart, fearing the Lord. Whatever your task, work heartily as serving the Lord and not men, knowing that from the Lord you will receive the inheritance as your reward; you are serving the Lord Christ. For the wrongdoer will be paid back for the wrong he has done, and there is no partiality.

Islam also inculcates values and norms that promote work ethics and admonish members to be law-abiding, and these serve as guiding principles for Muslims at work (Salem and Agil, 2012), and considers hard work as a positive value and as a part of mankind's service to the Almighty God (Salmabadi *et al.*, 2015). According to Islamic teachings, Allah also rewards those who work for good, for it is written: "As to those who believe and work with righteousness, verily we shall not suffer to perish the reward of any who do a single righteous deed" (Surah Alkhaf: 30), and "Verily, Allah enjoins justice, and giving help to relatives, and He forbids immoral sins, evil and tyranny. He admonishes you, so that perhaps you may take heed" (Surah An-Nahl: 90).

The African traditional religion also involves the concept of a Supreme Being which is invisible and indigenous (Idang, 2015). The guiding principles, values, norms and ethical codes of the African traditional religion are not written but are taught and imbibed into the minds and hearts of the followers, and these guide their everyday behaviour in various contexts. Mbiti (1969) indicated the ethical code of conduct in Traditional religion "are written not on paper, but in people's hearts, minds, oral history, rituals and religious personages like the priests, rainmakers, officiating elders and even kings" (p. 1). A moral sense of justice, truth and the knowledge of the existence of good and evil are inculcated through wise sayings and proverbs (Umoh, 2005). For instance, the following African Proverbs teach members of societies the value and ethical behaviour of hard work, diligence in one's work and conscientiousness: "The mouth does not eat if the feet do not walk and the hands work"; "The best preparation for tomorrow is to make sure today's work is superbly done"; and "You must judge a man by the work of his hand". Indeed, Idang (2015) noted that African religious values seem to have an influence on every aspect of the life of the African and the African believes that anything can be imbued with spiritual significance.

Religious values in African societies are not toyed with, because religion seems to be the hub around which every activity revolves (Idang, 2015). Turnipseed (2002), for instance, indicated that the values and beliefs that members of a given religion hold have often guided organisational managers on the moral and ethical guidelines they need to resolve ethical dilemmas in their organisations. We argue that religious values and beliefs are pertinent to the running of modern organisations. This is based on the fact that traditions of the major religions of the world have endured the test of time and the values inherent in those religions have enormous influences on the attitudes and behaviours of their members in various contexts and settings (Volland, 2009).

The term religiosity is difficult to define in scientific literature resulting in varied conceptualisations (Hackney and Sanders, 2003). Mokhlis (2006) defined religiosity or religious commitment as the degree to which individuals adopt and practice the beliefs in specific religious values and ideals. Religiosity represents the extent to which members of a religious group adhere to and practice the tenets of their religion (Asamani and Opoku Mensah, 2016). There are attempts

in the literature to distinguish between religiosity and spirituality. Hill and Maltby (2009) posited that the two concepts are kindred rather than independent. To them, while spirituality represents a quest for the sacred and a process through which people want to discover, encompass and bring the sacred into their lives, these processes generally take place in a religious context. They argued further that spirituality is an inherent part of the religiosity of a person, and that a person could be both spiritual and religious, or spiritual without being religious, or being religious without being spiritual. Zinnbauer *et al.* (1997) also noted that some individuals consider themselves as being spiritual without being religious, and increasingly, spirituality is used to describe religious spiritual experiences, while religiosity is used for institutionalised religious norms and behaviours. Olowookere (2014) intimated that spirituality denotes intrinsic religiosity, which depicts the selfless acceptance and commitment to the tenets of the religion of an individual, and living and making religion a lifestyle. The foregoing suggests that spirituality and religiosity are distinct but strongly related. Spirituality connotes individualised inner values, beliefs and practices, while religiosity represents public and group-based activities related to one's faith or worship.

In this paper, religiosity represents a belief system that associates the spiritual aspect of humans with the supernatural and the extent of adherence to the practices and beliefs of an organised religious institution. This definition recognises that religiosity represents transcendental experience as well as ritualistic observance and practices of the traditions and beliefs of a given religion. Since it is possible for one to be religious without being spiritual and vice versa, it would be appropriate for measures of religiosity or spirituality to cover both domains. The measurement of religiosity in this paper has elements of private individualised and transcendental experiences which could be described as spirituality or internal religiosity as well as the public practice of the beliefs of one's religion.

Extant literature indicates that individuals who show more religious affinity scored higher on work centrality, demonstrating that work held a more central role in their lives than their less religious counterparts (Huber and Huber, 2012). Religiosity, therefore, can be said to be an important mechanism for work attitudes, behaviours and other organisational outcomes (e.g. Lynn *et al.*, 2011). Generally, religiosity positively relates with work attitudes and behaviours (e.g. Asamani and Opoku Mensah, 2016). This suggests that religiosity is a critical socio-cultural value that has great implications for workplace attitudes, behaviours and performance, including safety performance.

Traditional conceptualisations of safety performance focused primarily on outcome data such as accident or injury data (Chhokar and Wallin, 1984), but these generally, neglect risk exposure and are largely inaccurate and retrospective (Glendon and McKenna, 1995). Cooper (2000) asserted that outcome reports of safety measures are affected by social desirability biases because people usually respond in such circumstances as they should rather than as they actually would have responded which results in inaccurate data. The "behaviour sampling" approach was therefore recommended to help overcome these challenges (Cooper, 2000; Tarrants, 1980). The behaviour sampling approach involves randomly sampling observable behaviours of the worker (e.g. complying with safe work procedures). This approach is considered more reliable, accurate and a more proactive way to manage safety than the outcome measures (e.g. Tarrants, 1980).

The introduction of the behaviour sampling approach, in addition to the outcome data in measuring safety performance, led to the measurement or conceptualisation of safety performance in two different ways in the literature (Christian *et al.*, 2009). The first consists of measures of safety outcomes, such as the number of injuries and near misses, and the second represents a measure of safety-related behaviours at work. Christian *et al.* (2009) therefore suggested a clear distinction to be made between safety-related behaviours, and the outcomes of such behaviours because the two concepts might have different relationships with antecedents.

We consider this to be a sound argument to delineate safety-related behaviours that affect safety outcomes as *safety behaviour*, while safety outcomes, consisting of tangible events or results (such as near misses, accidents, injuries, or fatalities), have been conceptualised as *safety performance*. Based on this distinction, extant literature indicates that safety behaviour is the most proximal or closest antecedent of safety performance. For instance, [Curcuruto et al. \(2015\)](#) found that when employees actively engaged in safety-related initiatives, safety performance was significantly improved (i.e. reduced rate of accidents and injuries).

The safety behaviour construct also consists of two separate dimensions; *safety compliance* and *safety participation*, and both are associated with safety performance ([Clarke, 2013](#); [Curcuruto et al., 2015](#)). Safety participation represents specific work behaviours and discretionary extra-role behaviours that indirectly contribute to a safe work environment. Voluntary participation in safety activities and programmes, helping others to work safely, and voicing safety concerns ([Mullen et al., 2017](#)) are examples of safety participation. Safety compliance on the other hand represents obligatory expectations of individuals to consciously engage in safe work behaviours and adhere to workplace safety rules and practices, such as, wearing protective safety equipment and immediately cleaning spilt oil or water on the floor. Safety compliance behaviours are mandatory in-role behaviours, while safety participation is discretionary extra-role behaviour that is initiated by the worker ([Clarke and Ward, 2006](#)).

Theoretical background

We adopted Cooper's reciprocal safety culture model ([Cooper, 2000](#)), and the socio-cultural sub-systems theory ([Luhmann, 2012](#)) to explain the potential relationships between religiosity and safety performance, through the safety behaviour of rice farm workers. Religiosity is a personal variable and an aspect of cultural values in society ([Nukunya, 2013](#)) that has the potential to influence the safety behaviour of rice farm workers.

The reciprocal safety culture model ([Cooper, 2000](#)) is relevant and conceptually appropriate for the explanation of religiosity as an antecedent of safety performance, through safety behaviour. [Cooper \(2000\)](#) posits that how one behaves on the job is influenced by his or her values and attributes, and the work environment. The key components of the model are the *person*, the *job behaviour* and the *situation*, and these components perpetually influence each other. The personal aspect of the model represents individual or personal factors/variables, group beliefs, attitudes, perceptions and values about safety. We conceptualised religiosity as a personal variable. The Job behaviour component depicts observable safety-related behaviours (safety behaviour) of individual employees on the job. Finally, the situation represents the objective situational factors such as organisational policies, management systems, operating procedures and communication styles about safety. The nature of the interaction between the person, situation and behaviour would determine the level of safety at the workplace ([Cooper, 2000](#)).

The socio-cultural subsystems model ([Luhmann, 2012](#)) focuses on the nature of the relationship between workplace culture and the cultural values and norms of the society in which workers live. [Nobles and Schiff \(2013\)](#) argued that modern societies are complex differentiated sub-systems, with the subsystems linked together with communications. Religiosity is considered an aspect of complex cultural values ([Mokhlis, 2009](#)), and culture has implications for the behaviour of individuals at work ([Apekey, 2001](#)). Socio-cultural factors are critical in shaping the attitudes, and subsequent behaviour of individuals ([Cooper, 2000](#)).

Research problem

Agriculture ranks among the most hazardous industries and farmers are at very high risk for fatal and nonfatal injuries ([The US Department of Labour, 2012](#)). Research in Ghana among

cocoa farmers indicated that cocoa farming activities pose grave health and safety challenges to farm workers, such as injuries and disabilities (Muilerman, 2013). The agricultural sector is the mainstay of the Ghanaian economy and employs over 64% of Ghanaians (Sharife, 2011). However, the majority of the health and safety literature is in areas such as oil and gas (Nkrumah *et al.*, 2021), construction, or mining (e.g. Amponsah-Tawiah, 2013). Critical safety behaviours for oil and gas, mining or construction are likely to be quite different from those in the agriculture sector.

Given this background, it is apt to explore how personal variables, such as religiosity, might relate to safety behaviour in the agricultural sector. Religiosity has been found to have influenced the behaviour of individuals in various settings, including workplace behaviour. For instance, positive relationships have been discovered between employees' religiosity and organisational citizenship behaviour (Asamani and Opoku Mensah, 2016), their job attitudes (Kutcher *et al.*, 2010; Sikorska-Simmons, 2005), ethical decision-making in organisations (Fernando and Jackson, 2006), general health practice and behaviour, including hand hygiene (Dodor, 2012), and higher job satisfaction (Sikorska-Simmons, 2005).

Despite empirical evidence linking religiosity and various forms of workplace attitudes and behaviours, there is a dearth of literature on investigations relating religiosity to workplace safety behaviour or safety performance, especially in the African, and specifically the Ghanaian context. Indeed, Gyekye and Haybatollahi (2012) investigated the relationship between the religious affiliations of industrial workers and the organisational behaviour in Ghana, but they only focused on religious affiliations (Christianity, Islamic and Traditional), rather than religiosity. Differences among national or different cultural values and groups of workers, even in the same occupation have been found to account for differences in safety outcomes (Perez-Floriano, 2001). These cultural differences in risk perceptions in different work settings, and occupations, suggest that workplace safety is socially constructed and related to context.

Salleh (2010) further observed that while the study of human safety behaviour has been conducted for decades, there remained unexplored variables. One important unexplained area is the possible mechanism through which religiosity could influence safety performance. Given that positive relationships have been established between religiosity and workplace behaviour in various forms, and also a negative relationship between safety behaviour and safety performance, we conceptualised safety behaviour as a mediating variable between religiosity and safety performance.

We formulated the following hypotheses based on the purpose of the study and the review of the pertinent literature:

- (1) Religiosity of Ghanaian rice farmers will positively predict their safety behaviour
- (2) Safety behaviour of Ghanaian rice farmers will negatively predict their safety performance
- (3) Safety behaviour will mediate the effect of religiosity on safety performance among Ghanaian rice farmers.

Method

Research design and participants

Using a cross-sectional survey design, we randomly sampled 469 rice farmers from three irrigation schemes in the Central and Greater Accra regions of Ghana. These are well-organised irrigation schemes, with scheme managers and Farmers' Cooperative executives. The total workforce for the three schemes was 2,938, made up of 1,973

(67.15%) males and 965 (32.85%) females. Rice production is labour intensive and so more than 70% of all rice farmers are men (Addison *et al.*, 2014).

The respondents (Table 1) comprised 347 (74%) males and 122 (26%) females. Most of the farmers attained a basic level of education (51.6%), 24.1% had no formal education, 18.8% attained secondary education and 5.5% attained a tertiary level of education. Thus, about 75.9% of the rice farmers obtained at least a basic level of education. The minimum age of the respondents was 23 years, and the maximum was 80 years, with their mean age being 45.96 years (*SD* = 11.82). The minimum and maximum years of rice farming experience by the respondents were 1 year and 45 years respectively, with the average being 13.65 years (*SD* = 8.06).

Measures

Given that some of the rice farmers could not read or understand the English Language, we used two versions of the set of questionnaires: an English version and a translated local language (Twi) version. The Department of Linguistics and Ghanaian Languages at the University of Cape Coast translated the items on the questionnaire from English to Twi, following the “forward-backwards-forward procedure that Beaton *et al.* (2002) suggested for semantic and conceptual equivalence. Further analysis of measurement invariance indicated that the responses from the two versions were equivalent (full measurement invariance) and so were put together for the test of the hypotheses and other analyses. We used the three-step hierarchical measurement invariance of composite models (MICOM: Henseler *et al.*, 2016) to test the measurement invariance.

The first step required establishing configural invariance to show that the basic factor structures in terms of the number of constructs and items measuring each construct were the same (Henseler *et al.*, 2016) in both the Twi and English versions. Treatment of the data, algorithm settings and optimisation criteria (Hair *et al.*, 2012; Henseler *et al.*, 2016) were also the same.

The second step requires compositional invariance. We used the same process to combine the indicator variables into composites for both the English and Twi respondents. This ensures that differences in structural coefficients do not result from differences in the way the composites are formed. We used the permutation test of the correlation between the composite means of the Twi and English groups (Henseler *et al.*, 2016), and the results (Table 2) showed that compositional invariance was established. The third step which involved testing for equality of composite mean values and variances indicated that they were equivalent for the items in both sets. Thus, we established full measurement invariance and pooled the two sets together for other analyses.

Table 1.
Sex and educational
level distributions of
respondents

	Freq	Percent
<i>Gender</i>		
Male	347	74.0
Female	122	26.0
Total	469	100.0
<i>Educational levels</i>		
No formal education	113	24.1
Basic (Primary/JSS/Middle) School	242	51.6
Secondary (SSSCE/WASSE)	88	18.8
Tertiary (HND/First Degree equivalent)	26	5.5
Total	469	100.0

Step 1: Configural invariance- basic factor structures are the same (see text)

Step 2: Original and permutation correlations of mean composite values

	Original correlation	Correlation perm mean	5.0%	Perm <i>p</i> -values
Religiosity	0.998	0.994	0.982	0.873
Safety behaviour	0.999	0.999	0.997	0.391
Safety performance	0.998	0.997	0.989	0.133

Step 3: Equality of composite mean values and variances

Latent variable	Orig mean-diff (Twi-Eng)	Perm mean diff (Twi-Eng)	2.5%	97.5%	Perm <i>p</i> -values
<i>Equality of composite mean values</i>					
Religiosity	-0.181	-0.001	-0.213	0.211	0.096
Safety behaviour	-0.130	0.000	-0.209	0.216	0.218
Safety performance	-0.140	-0.000	-0.210	0.218	0.342
<i>Equality of composite variances</i>					
Religiosity	-0.044	-0.015	-0.355	0.376	0.957
Safety behaviour	-0.136	-0.011	-0.321	0.275	0.396
Safety performance	-0.236	-0.017	-0.347	0.304	0.182

Note(s): Step 1 of the MICOM procedure was qualitatively determined and presented in the text

Table 2.
Hierarchical measurement invariance of composite models (MICOM)

Construct reliability and validity

Construct reliability and validity are essential psychometric requirements in any research (Hair *et al.*, 2019). All the measures in this study had good psychometric properties, showing that, both reliability and construct validity (convergent and discriminant validities) have been adequately established. We established the reliability of the constructs with Cronbach's alpha and composite reliability and construct validity with convergent and discriminant validities (Hair *et al.*, 2019; Sarstedt *et al.*, 2021). We used the average variance extracted (AVE) to demonstrate convergent validity (Table 3). An AVE greater than 0.50 is considered adequate for convergent validity because that indicates that the indicators accounted for more than 50% of the variance in the definition of the construct (Hair *et al.*, 2019; Sarstedt *et al.*, 2021). The AVE for all the constructs: religiosity (AVE = 0.59), safety behaviour (AVE = 0.84), and safety performance (AVE = 0.71), were above the 0.50 criterion which was indications of evidence of convergent validity of the constructs.

Regarding discriminant validity, we used the Fornell-Larcker discriminant criterion and the heterotrait-monotrait (HTMT) ratio. Discriminant validity is established with the Fornell-Larcker criterion approach if the square root of the AVE of a given construct is greater than its correlation with all other constructs. With the heterotrait-monotrait (HTMT) Ratio approach, a threshold value of below 0.90 is the benchmark if the path model includes constructs that are conceptually very similar, and 0.85 if the constructs are conceptually more

Variable	Cronbach's alpha	Composite reliability	AVE
Safety behaviour	0.897	0.919	0.842
Religiosity	0.910	0.924	0.589
Safety performance	0.907	0.917	0.708

Table 3.
Reliability coefficients and average variance extracted (AVE) of measures

distinct (Henseler *et al.*, 2015). The Fornell-Larcker discriminant criterion (Table 4) and the HTMT ratios (Table 5) both provided evidence demonstrating discriminant validity among the constructs.

Religiosity

The 20-item version of the Centrality of Religiosity Scale (CRS) (Huber and Huber, 2012) was adapted and five of the items incorporate measures of inter-religious settings. The scale measures the general intensities of five theoretically defined core dimensions of religiosity. The five dimensions are: intellectual (e.g. *How interested are you in learning more about religious topics?*), public religious practice (e.g. *How often do you take part in religious services?*), private religious practice (e.g. *How often do you meditate?*), religious ideology (e.g. *How probable is it that a higher power really exists?*), and religious experience (e.g. *How often do you experience situations in which you have the feeling that God/Allah or something divine is present?*). These can together be considered representative of the religious life of an individual.

The items are rated on a seven-point Likert-type scale ranging from 1 for Never, 2 for a few times a year, 3 for 1 to 3 times a month, 4 for once a week, 5 for more than once a week, 6 for once a day, and 7 for several times a day. Higher scores denote having a more central religious construct system. Researchers who used the scale reported reliability coefficients of 0.83 and above (e.g. Asamani and Opoku Mensah, 2016; Huber and Huber, 2012).

Safety behaviour

The safety behaviour of the rice farmers was measured with a 12-item Likert-type scale by Salleh (2010). Responses were rated on a five-point scale, ranging from 1 (never) to 5 (always), with higher scores denoting better safety behaviour. There were six items each for the two components of safety behaviour: safety participation (e.g. *If I see something unsafe, I go out of my way to address it*) and safety compliance (e.g. *I use all the necessary safety equipment to do my work in the farm*). Reported reliabilities range from 0.76 and above (e.g. Salleh, 2010). The Cronbach's alpha (0.90) and composite reliability (0.92) for safety behaviour, as well as the convergent validity coefficients (AVE = 0.84), were good for the current sample (see Table 3).

Table 4.
Fornell-Larcker
discriminant criterion

	Religiosity	Safety behaviour	Safety performance
Religiosity	<i>0.767</i>		
Safety behaviour	0.387	<i>0.918</i>	
Safety performance	0.004	−0.238	<i>0.841</i>

Note(s): Square roots of AVEs are in italic case: The square root of the AVE of a construct must be greater than the correlation coefficients of the relationships between that particular construct and other constructs for discriminant validity to be established

Table 5.
Heterotrait-monotrait
(HTMT) ratios between
the constructs

Paths	Original sample	Sample mean	2.5%	97.5%
SBVR → REL	0.415	0.416	0.337	0.497
SPF → REL	0.165	0.181	0.143	0.224
SPF → SBVR	0.155	0.167	0.105	0.229

Note(s): REL = Religiosity; SBVR = safety behaviour; SPF = Safety performance
HTMT ratios less than 0.90 indicate discriminant validity

Safety performance

Safety performance was measured in this study with an adaptation of the incident reporting rate questionnaire (Barling *et al.*, 2002; Salem and Agil, 2012) which consists of three components, namely, physical symptoms (e.g. *Muscle strain or sprain*), psychological symptoms (e.g. *Been unable to concentrate work-related tasks*) and accident/injuries (e.g. *Slipped, tripped or fell on the same level*) rates of respondents. The original scale is made up of 27 incidents, but the adapted version for this study has 39 incidents and respondents were asked: “*In the last month, how frequently did you experience these at work?*” Relevant items specific to rice farm work were added. Examples of such items are *injury from catapults used to scare birds*; *burns from fertilizer*; and *Dust from winnowing of rice*. Responses are rated on a five-point Likert-type of scale, ranging from 1 (never) to 5 (always). Higher scores denote poor safety performance. This questionnaire has been used widely, and researchers reported Cronbach’s alpha ranging from 0.70 to 0.80 has also been found to have good validity (Kiani *et al.*, 2011). The reliability measures (Cronbach’s alpha = 0.91; Composite reliability = 0.92) and convergent validity coefficient (AVE = 0.71) for the current study were also good.

Ethical considerations

There was an informational sheet that outlined the purpose of the study and assured all participants that there were no risks associated with participating in the study. The level or limits of confidentiality and privacy were also given in detail to all participants. In addition, participants were made aware that the results of the study would be aggregated which would mask individual responses. Again, there were no names or specific identification systems to assure the respondents that their privacy was protected at all times. Furthermore, they were told that they could withdraw from the study during the data collection at any point if they do not want to continue, and refrain from answering any particular question, or a group of questions they do not feel comfortable answering, or return the entire questionnaire without completing it.

Results

The hypothesised structural and the measurement models were tested to ascertain the extent to which religiosity predicted the safety performance of the rice farmers through their safety behaviour. The primary analytical tool was Partial Least Squares Structural Equation Modelling (PLS-SEM), using the SmartPLS 3.2.6 (Ringle *et al.*, 2005). The significance of the path coefficients was determined through the PLS bootstrapping approach, using 5,000 bootstrap samples, with bias-corrected and accelerated.

Religiosity, safety behaviour and safety performance

The first hypothesis of the paper sought to find out whether the level of *religiosity of the rice farmers would positively predict their overall safety behaviour*. The other two hypotheses are that: *Safety behaviour of Ghanaian rice farmers will negatively predict their safety performance*, and *Safety behaviour will mediate the effect of religiosity on safety performance among Ghanaian rice farmers*.

The results presented in Table 6 indicated that religiosity had a positive direct relationship with both safety behaviour ($\beta = 0.356, p < 0.001, f^2 = 0.145$), and safety performance ($\beta = 0.153, p = 0.023, f^2 = 0.021$), but a negative indirect relationship with safety performance, through safety behaviour ($\beta = -0.066, p = 0.023, \text{VAF} = -0.431$). The total effect of religiosity on safety performance was, however, not significant ($\beta = 0.087, p < 0.05, f^2 = 0.001$). The variance account for (VAF) was used to evaluate the strength of the indirect (mediation) effect. This involves the estimation of the indirect-to-direct effect ratio (Hair *et al.*, 2021).

Thus, safety behaviour played a competitive partial mediating role in the relationship between religiosity and safety performance, and account for 43.1% reduction in the relationship between religiosity and safety performance (i.e. VAF = -0.431), making the total effect non-significant. In a competitive partial mediation, the direct effect and indirect effect are both significant, but point in different directions (Hair *et al.*, 2021). In such situations, the intermediate (mediating) variable reduces the magnitude of the relationship between the independent and dependent variables. Safety behaviour also had a weak negative relationship with safety performance ($\beta = -0.185, p < 0.05, f^2 = 0.031$). Thus, as safety behaviour scores increased, safety performance reduced.

Relationships between dimensions of safety behaviour and dimensions of safety performance

We partitioned safety performance into its three dimensions to ascertain how each of the two dimensions of safety behaviour related with the dimensions of safety performance. The results (see Table 7) indicated that safety compliance significantly predicted only psychological symptoms of safety performance ($\beta = -0.314, p < 0.001$), whereas safety participation behaviour had a significant positive relationship with physical symptoms ($\beta = 0.469, p < 0.001$), but none of the dimensions predicted accidents of the rice farmers.

Discussion of findings

Religiosity and safety behaviour

We tested whether *religiosity would relate positively with safety behaviour*. Several studies indicated that religiosity has a positive influence on employees' workplace behaviour. The

Table 6.
Path coefficients,
effects sizes and
quality criteria

Paths	Standardized coefficients (β)			Effect size f^2	Quality criteria	
	Direct	Indirect	Total		R^2	Q^2
REL $\rightarrow$ SBVR	0.356***		0.356***	0.145***	0.127***	0.074
REL $\rightarrow$ SPF	0.153*	-0.066^*	0.087 ^{ns}	0.021	0.037	0.010
SBVR $\rightarrow$ SPF	-0.185^*		-0.185^*	0.031		

Note(s): REL = Religiosity; SBVR = safety behaviour; SPF = Safety performance
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$; **** $p < 0.001$; ns = not significant; R^2 = variance; f^2 = effect size; Q^2 = predictive relevance (values greater than zero signify predictive relevance)

Table 7.
Path coefficients
between safety
behaviour dimensions
and dimensions of
safety performance

Model	Original coefficient	Bootstrap coefficient	SD	T stats	p-values	f^2	R^2	Q^2
SCB $\rightarrow$ ACC	-0.228	-0.231	0.144	1.587	0.056	0.026	0.041	0.009
SPB $\rightarrow$ ACC	0.293	0.261	0.217	1.349	0.089	0.042		
SCB $\rightarrow$ PHY	-0.168	-0.144	0.185	0.911	0.181	0.016	0.141	0.013
SPB $\rightarrow$ PHY	0.479****	0.469	0.118	4.069	0.000	0.126		
SCB $\rightarrow$ PSYC	-0.311 ****	-0.314	0.067	4.617	0.000	0.049	0.073	0.038
SPB $\rightarrow$ PSYC	0.061	0.059	0.078	0.780	0.218	0.002		

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$; **** $p < 0.001$
SCB = Safety compliance behaviour; SPB = Safety participation behaviour, ACC = Accidents;
PSYC = Psychological symptoms; PHY = Physical symptoms
 R^2 = variance; f^2 = effect size; Q^2 = predictive relevance (values greater than zero signify predictive relevance);
SD = Standard deviation; T stats = The usual *t*-statistics to establish significance of a test

results support the positive relationship between religiosity and the safety behaviour of rice farmers. This finding indicates that individuals who scored highly on religiosity were more likely to exhibit positive safety behaviour at work. This confirms the findings of [Kutcher et al. \(2010\)](#) who observed that employees do not leave their religiosity behind but carry their religious beliefs with them to their workplace. This has implications for their workplace attitudes and behaviour as demonstrated in several studies (e.g. [Asamani and Opoku Mensah, 2016](#); [Kutcher et al., 2010](#)).

Consistent with the socio-cultural sub-systems theory, the work environment is a miniature society and as social beings, our actions and attitudes in any environment, whether work or home, are directly influenced, to a large extent, by our religion-rooted cultural beliefs ([Mokhlis, 2009](#)). Religious beliefs and values are part of the overall cultural value system of the Ghanaian and the tenets of various religions admonish individuals to engage in appropriate behaviours, including safe work behaviour. These values might have been deeply rooted in the belief systems of the farmers and directly influencing their safety-related behaviours. [Mokhlis \(2009\)](#) expressed the notion, that religion represents an important cultural aspect of the individual and it is one of the most universal and influential social institutions that have significant influences on people's attitudes, values and behaviours at both the individual and societal levels. In this regard, whether the individuals are on their farms, home or at work, their actions are guided by deeply rooted and culturally relevant religious beliefs. Considering how entrenched religious values are in the context of the African, and for that matter, the Ghanaian, it was not surprising that religiosity was positively related with safety-related behaviour of the rice farmers.

Relationship between safety behaviour and safety performance

We tested the hypothesis that: *Safety behaviour will significantly predict the safety performance of rice farmers.* The results showed that safety behaviour had a significant weak negative relationship with safety performance. This result supports most of the empirical data, suggesting that positive safety behaviour could reduce the incidences of health and safety challenges, such as accidents, physical health and psychological health symptoms. Extant literature indicates that safety behaviour is the immediate and most proximal precursor of safety performance (e.g. [Curcuruto et al., 2015](#)), and generally shows a moderate to strong relationship. Several authors reported negative relationships between safety behaviour and reported accidents, injuries and near misses ([Neal and Griffin, 2006](#)). The finding in the current study thus, supports available literature and our expectation that positive safety behaviour would engender reduced reported health and safety challenges. Unsafe acts or poor safety behaviour logically and empirically is of great concern to safety practitioners and researchers in safety science regarding antecedents of workplace accidents or injuries ([Garavan and O'Brien, 2001](#)).

The results from the partitioning of safety behaviour and safety performance constructs were partitioned into their sub-components indicate that safety compliance related negatively with only psychological symptoms, while safety participation also related positively with only physical symptoms of safety performance. However, neither of the dimensions of safety behaviour significantly predicted accidents. This suggests that safety compliance could minimise psychological health and safety symptoms among the rice farmers, whereas safety participation would rather increase their physical symptoms of safety performance. It seems that the farmers who engage in safety participation behaviour had to go the extra mile to put things right, which might result in extra stress, accounting for the positive relationship with physical health symptoms. [Neal and Griffin \(2006\)](#) indicated that when workers do not participate in activities that enhance safety at the workplace, the person who was negligent in those behaviours may not be directly affected but can create the conditions that make it more

likely that someone else would be injured later on. Further studies may be needed to explore why neither of the safety behaviour dimensions significantly predicted the accidents/injuries dimension of safety performance.

The present study provides evidence from production agricultural work (rice farm) sample that creating positive safety behaviour could promote a safe work environment. The conclusion from partitioning of the dimension of safety behaviour is that safety compliance is essential in the management of safety among rice farmers. However, the findings regarding safety participation behaviour require further investigation to find out why safety participation related positively with the physical symptoms of safety performance.

Mediating effect of safety behaviour on the relationship between religiosity and safety performance

We found that safety behaviour significantly mediated the relationship between religiosity and safety performance with a negative variance accounted for (VAF). There was a weak partial negative mediating (competitive) effect of safety behaviour on the relationship between religiosity and safety performance. The negative mediating effect and the positive direct effect led to a “pull-push effect” of positive-negative effects of the direct and indirect effects, making the total effect of religiosity on safety performance not to be significant.

In sum, the significant mediating role of safety behaviour suggests that religiosity could influence safety behaviour, which in turn could influence safety performance. The findings led to the conclusion that religious values have a direct influence on the behaviour of individuals at work, including their safety-related behaviours. Also, the behaviour of individuals on the job has significant implications for their safety performance. As [Aulin et al. \(2019\)](#) observed, analysis of individual factors and other behavioural antecedents at the workplace help in having a more comprehensive appreciation of workplace safety.

Thus, the findings of this paper provide support for the reciprocal safety culture model and the socio-cultural sub-systems theory. Essentially, individual factors, such as beliefs, values and attitudes have implications for how they behave at work, and the nature of the interaction between the individual factors and work behaviour could influence safety at the workplace. This means that the beliefs, values and attitudes of individuals, which as are aspects of socio-cultural norms could not be overemphasised when discussing workplace safety behaviour and related issues.

Strengths and limitations of the study

The paper has some strengths and practical implications for practitioners, policymakers and researchers. We took steps to ensure full invariance of the measures between the two forms of data collected from the Twi and the English Language versions of the questionnaire. We further made a clear distinction between the conceptualisation and measurement of safety behaviour and safety performance, which has implications for future research in safety science.

However, some limitations of the study are worth mentioning. First, the study was conducted in the Southern part of Ghana, and with only organised large and medium-size rice irrigation scheme farmers. This may limit the generalisability of the findings to rice farmers in the other parts of Ghana and smallholder farmers. Also, given that the respondents were rice farm workers, the findings may have limited applicability to other production agricultural ventures in the industrial, service and formal sectors.

Implications for future research

The present paper established how religiosity relates to safety behaviour, and ultimately safety performance among rice farm workers. Further research could be conducted into how

and why religiosity relates to safety behaviour and performance in different contexts within production agriculture and other informal work settings. Future studies may also explore how other African values, for instance, a sense of community or communal values and respect for authority relate to workplace safety behaviour, as well as the safety culture. The dynamic relationships between religiosity, safety culture, risk perception, safety behaviour and safety performance could also be investigated to provide a more comprehensive view of safety management at work.

The findings from the present study provided support to [Christian et al. \(2009\)](#) and other researchers' proposition that safety behaviour and safety performance constructs should be distinguished in occupational safety research. Future research should therefore endeavour to conceptualise these constructs appropriately to facilitate consistent measurement and meaningful discussion of findings.

Implications for practice

The findings underscore the need for safety science practitioners to encourage and nurture positive safety behaviour as this has immense implications for safety at work. Employees must be made to follow safety protocols in the discharge of their duties, and not prioritise production over safety. The findings also confirm the relevance of religious and spiritual aspects of individuals in their daily lives, as well as workplace behaviour and psychological health. Religiosity could therefore be cautiously encouraged at the workplace because if it is not properly managed, it could lead to unintended consequences and abuse, where some people would spend productive hours engaging in religious activities. There should, therefore, be clear guidelines for the implementation of religious programmes at the workplace. As noted by [Krishnakumar and Neck \(2002\)](#) optional organisation of morning prayers or meditation sessions, multi-faith prayer space, corporate chaplaincy, spiritual wellness and balance programmes could be implemented to encourage religiosity at the workplace. Promotion and respect for religious diversity, as well as a culture of diversity of beliefs, would be of great benefit.

Finally, because workers generally spend the major aspect of their waking lives at work or in work-related activities, the work environment and work experiences must be made safe and satisfying as much as possible. One of the fundamental human rights of any workforce is *the right to safe working conditions*, irrespective of where they work. Safety and health at work is a sound economic policy as well as a basic human, and safe work is eventually decent work. We conclude that religiosity is a significant socio-cultural value that holds implications for the work outcomes and experiences in the contemporary world of work.

References

- Addison, M., Edusah, S.E. and Sarfo-Mensah, P. (2014), "Gender constraints and rice varietal characteristics preferences in lowland rice ecosystem in Ghana", *Developing Country Studies*, Vol. 4 No. 15, pp. 92-98.
- Amponsah-Tawiah, K. (2013), "Occupational health and safety and sustainable development in Ghana", *International Journal of Business Administration*, Vol. 4 No. 2, pp. 74-78.
- Apekey, A.K. (2001), "Traditional values and management in Ghana", PhD thesis, University of Ghana, Legon.
- Asamani, L. and Opoku Mensah, A. (2016), "Religiosity as an antecedent of employees' organisational citizenship behaviour", *Advances in Social Sciences Research Journal*, Vol. 3 No. 7, pp. 34-45.
- Aulin, R., Asa, Ek and Edling, C. (2019), "Underlying causes for risk-taking behaviour among construction workers", *Emerald Reach Proceedings Series*, Vol. 2, pp. 419-426.

- Barling, J., Loughlin, C. and Kelloway, E.K. (2002), "Development and test of a model linking safety-specific transformational leadership and occupational safety", *Journal of Applied Psychology*, Vol. 87, pp. 488-496.
- Beaton, D., Bombardier, C., Guillemin, F. and Ferraz, M.B. (2002), "Recommendations for the cross-cultural adaptation of health status measures", *New York: American Academy of Orthopaedic Surgeons*, Vol. 25 No. 24, pp. 3186-3191.
- Chhokar, J.S. and Wallin, J.A. (1984), "A field study of the effect of feedback frequency on performance", *Journal of Applied Psychology*, Vol. 69 No. 3, pp. 524-537.
- Christian, M.S., Bradley, J.C., Wallace, J.C. and Burke, M.J. (2009), "Workplace safety: a meta-analysis of the roles of person and situation factors", *Journal of Applied Psychology*, Vol. 94, pp. 1103-1127.
- Clarke, S. (2013), "Safety leadership: a meta-analytic review of transformational and transactional leadership styles as antecedents of safety behaviours", *Journal of Occupational and Organisational Psychology*, Vol. 86 No. 1, pp. 22-49.
- Clarke, S. and Ward, K. (2006), "The role of leader influence tactics and safety climate in engaging employees' safety participation", *Risk Analysis*, Vol. 26 No. 5, pp. 1175-1185.
- Cooper, M.D. (2000), "Towards a model for safety culture", *Safety Science*, Vol. 36 No. 2, pp. 111-136.
- Curcuruto, M., Conchie, S.M., Mariani, M.G. and Violante, F.S. (2015), "The role of prosocial and proactive safety behaviours in predicting safety performance", *Safety Science*, Vol. 80, pp. 317-323.
- Dodor, B. (2012), "The impact of religiosity on health behaviours and obesity among African Americans", *Journal of Human Behaviour in the Social Environment*, Vol. 22 No. 4, pp. 451-462.
- Fernando, M. and Jackson, B. (2006), "The influence of religion-based workplace spirituality on business leaders' decision-making: an inter-faith study", *Journal of Management and Organisation*, Vol. 12, pp. 23-39.
- Garavan, T.N. and O'Brien, F. (2001), "An investigation into the relationship between safety climate and safety behaviours in Irish organizations", *Irish Journal of Management*, Vol. 22, pp. 141-170.
- Ghana Statistical Service (2012), *2010 Population and Housing Census: Summary Report of Final Results*, Ghana Statistical Service, Accra.
- Glendon, A.I. and McKenna, E.F. (1995), *Human Safety and Risk Management*, Chapman & Hall, London.
- Gyekye, S.A. and Haybatollahi, M. (2012), "Workers' religious affiliations and organisational behaviour: an exploratory study", *International Journal of Organisational Behaviour*, Vol. 17 No. 4, pp. 1-18.
- Hackney, C.H. and Sanders, G.S. (2003), "Religiosity and mental health: a meta-analysis of recent studies", *Journal for the Scientific Study of Religion*, Vol. 42 No. 1, pp. 43-55.
- Hair, J.F., Ringle, C.M. and Sarstedt, M. (2012), "Partial least squares: the better approach to structural equation modelling?", *Long Range Planning*, Vol. 45 Nos 5-6, pp. 312-319.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24.
- Hair, J.F., Astrachan, C.B., Moisesescu, O.I., Radomir, L., Sarstedt, M., Vaithilingam, S. and Ringle, C.M. (2021), "Executing and interpreting applications of PLS-SEM: updates for family business researchers", *Journal of Family Business Strategy*, Vol. 12 No. 3, 100392.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modelling", *Journal of the Academy of Marketing Science*, Vol. 43 No. 1, pp. 115-135.
- Henseler, J., Hubona, G. and Ray, P.A. (2016), "Using PLS path modelling in new technology research: updated guidelines", *Industrial Management and Data Systems*, Vol. 116 No. 1, pp. 2-20.

- Hill, P.C. and Maltby, L.E. (2009), "Measuring religiousness and spirituality: issues, existing measures, and the implications for education and well-being", in de Souza, M., Francis, L. J., O'Higgins-Norman, J. and Scott, D. (Eds), *International Handbook of Education for Spirituality, Care and Wellbeing*, Springer, New York, pp. 33-50.
- Huber, S. and Huber, O.W. (2012), "The centrality of religiosity scale (CRS)", *Religion*, Vol. 3, pp. 710-724.
- Idang, G.E. (2015), "African culture and values", *Phronimon*, Vol. 16 No. 2, pp. 92-111.
- Khan, T.R. and Tantray, M.A. (2019), "Ethics in religious teaching: an analytical approach", *Milestone Educational Review*, Vol. 10 Nos 1, 2, pp. 4-9.
- Kiani, F., Samavatyan, H. and Pourabdian, E.J. (2011), "Predictive power of incidents reporting rate and its dimensions by job stress workers of Isfahan Steel Company", *Iran Journal of Public Health*, Vol. 40 No. 3, pp. 105-112.
- Krishnakumar, S. and Neck, C.P. (2002), "The "what", "why" and "how" of spirituality in the workplace", *Journal of Managerial Psychology*, Vol. 17 No. 3, pp. 153-164.
- Kutcher, J.E., Bragger, J.D., Srednicki, R.O. and Masco, L.L. (2010), "The role of religiosity in stress, job attitudes, and organisational citizenship behaviour", *Journal of Business Ethics*, Vol. 95, pp. 319-337.
- Luhmann, N. (2012), *Theory of Society* (translated by Barrett, R.), Vol. 1, Stanford University Press, Stanford (First published in German in 1997).
- Lynn, M.L., Naughton, M.J. and Vander Veen, S. (2011), "Connecting religion and work: patterns and influences of work-faith integration", *Human Relations*, Vol. 64 No. 5, pp. 675-701.
- Mbiti, J.S. (1969), *African Religions and Philosophy*, Heinemann, London.
- Mokhlis, S. (2006), "The effect of religiosity on shopping orientation: an exploratory study in Malaysia", *Journal of American Academy of Business*, Vol. 9 No. 1, pp. 64-74.
- Mokhlis, S. (2009), "Relevancy and measurement of religiosity in consumer behaviour research", *International Business Research*, Vol. 2 No. 3, pp. 75-84.
- Muillerman, S. (2013), *Occupational Safety and Health on Ghanaian Cocoa Farms. Baseline Report of Sustainable Tree Crops Programme*, International Institute of Tropical Agriculture (IITA), Accra.
- Mullen, J., Kelloway, E.K. and Teed, M. (2017), "Employer safety obligations, transformational leadership and their interactive effects on employee safety performance", *Safety Science*, Vol. 91, pp. 405-412.
- Neal, A. and Griffin, M.A. (2006), "A study of the lagged relationships among safety climate, safety motivation, safety behaviour, and accidents at the individual and group levels", *Journal of Applied Psychology*, Vol. 91, pp. 946-953.
- Nkrumah, E.N.K., Liu, S., Fiergbor, D. and Akoto, L.S. (2021), "Improving the safety-performance nexus: a study on the moderating and mediating influence of work motivation in the causal link between occupational health and safety management (OHSM) practices and work performance in the oil and gas sector", *International Journal of Environmental Research and Public Health*, Vol. 18 No. 10, 5064. doi: [10.3390/ijerph18105064](https://doi.org/10.3390/ijerph18105064).
- Nobles, R. and Schiff, D. (2013), *Observing Law through Systems Theory*, Hart Publishing, Oxford.
- Nukunya, K. (2013), "The spread of the global financial crisis to Eastern Europe: evidence from leading indicators and the impact of exchange rate regimes", Doctoral dissertation, The Claremont Graduate University.
- Olowookere, E.I. (2014), "The influence of religiosity and organisational commitment on organisational citizenship behaviours: a critical review of literature, advances in social", *Sciences Research Journal*, Vol. 1 No. 3, pp. 48-63.
- Perez-Floriano, L.R. (2001), "Hazard information, risk perception, cultural values, and safety compliance: a comparison of Canada, Mexico, and the United States", Doctoral dissertation, California School of Professional Psychology, San Diego, CA.

- Ringle, C.M., Wende, S. and Will, A. (2005), "Customer segmentation with FIMIX-PLS", *Proceedings of PLS-05 International Symposium*, Paris, SPAD Test & Go, pp. 507-514.
- Salem, Z.O. and Agil, S.O.S. (2012), "The effects of Islamic management ethics on organisational commitment of employees in Libyan public banks", *Australian Journal of Basic and Applied Sciences*, Vol. 6 No. 7, pp. 260-270.
- Salleh, A. (2010), "Safety behaviour in the Malaysian petrochemical industry", PhD thesis, Universiti Utara, Malaysia.
- Salmabadi, M., Fatehi, H. and Mortezaheidari, M.A. (2015), "The role Islamic work ethics in the employee engagement", *Journal of Biodiversity and Environmental Sciences (JBES)*, Vol. 6 No. 5, pp. 463-470.
- Sarstedt, M., Ringle, C.M. and Hair, J.F. (2021), "Partial least squares structural equation modeling", in Homburg, C., Klarmann, M. and Vomberg, A.E. (Eds), *Handbook of Market Research*, Springer, Cham.
- Sasu, D.D. (2022), "Religious affiliation of the population in Ghana in 2010 and 2021", available at: www.statista.com/statistics/1172414/religious-affiliation-in-in-ghana.
- Sharife, K. (2011), "Ghana: over 64% work in agriculture sector", available at: <http://www.theafricareport.com/West-Africa/over-64-of-employed-ghananians-work-in-the-agricultural-sector.html>.
- Sikorska-Simmons, E. (2005), "Predictors of organisational commitment among staff in assisted living", *The Gerontologist*, Vol. 45 No. 2, pp. 196-205.
- Tarrant, W.E. (1980), *The Measurement of Safety Performance*, Garland STPM, New York.
- The US Department of Labour (2012), *The Latino Labour Force at a Glance*, US Bureau of Labour Statistics, Current Population Survey: Author, Washington, DC.
- Turnipseed, D.L. (2002), "Are good soldiers good? Exploring the link between organisational citizenship behaviour and personal ethics", *Journal of Business Research*, Vol. 55, pp. 1-15.
- Umoh, J.O. (2005), *Elements of Sociology of Religion*, Iwoh Publishers, Ikot Ekpene.
- Volland, E. (2009), "The biological evolution of religious mind and behaviour", in Schiefenhövel, W. (Ed.), *The Frontiers Collection*, Springer-Verlag, Berlin, Heidelberg.
- Zinnbauer, G.J., Pargament, K.I., Cole, B.C., Rye, M.S. and Butter, E.M. (1997), "Religion and spirituality: unfuzzifying the fuzzy", *Journal for the Scientific Study of Religion*, Vol. 36, pp. 549-564.

Further reading

- Ringle, C.M., Sarstedt, M. and Schlittgen, R. (2014), "Genetic algorithm segmentation in partial least squares structural equation modelling", *OR Spectrum*, Vol. 36 No. 1, pp. 251-276.
- Sarstedt, M., Ringle, C.M., Henseler, J. and Hair, J.F. (2014), "On the emancipation of PLS-SEM: a commentary on Rigdon (2012)", *Long Range Planning*, Vol. 47 No. 3, pp. 154-160.
- Sarstedt, M., Hair, J.F., Ringle, C.M., Thiele, K.O. and Gudergan, S.P. (2016), "Estimation issues with PLS and CBSEM: where the bias lies", *Journal of Business Research*, Vol. 69 No. 10, pp. 3998-4010.

Corresponding author

Lebbaeus Asamani can be contacted at: lebbaeus.asamani@ucc.edu.gh

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com