



Research article

Predicting residents' intention to conserve the hooded vulture (*Necrosyrtes monachus*) in the Birem North District, GhanaBright O. Kankam^a, Haruna Abukari^{a,b,*}^a CSIR-Forestry Research Institute of Ghana, P. O. Box UP 63, KNUST, Kumasi, Ghana^b Department of Anthropology and Archaeology, University of Calgary, Calgary, AB., Canada

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ABSTRACT

The vulture as an important and specialized scavenger in human societies, helps clean the environment and prevents diseases. However, plummeting populations across the globe in the last three decades has led to the classification of some species as endangered and critically endangered. This study predicts the intention of residents to support conservation of the hooded vulture in communities near a mine site in the Eastern region of Ghana. Novelty of the current study lies in the use of a social psychology theory to prognosticate human attitude towards a potential vulture population increase. The Theory of Planned Behavior was used as the study framework while data was collected through household survey. The questionnaire assessed attitudes of residents towards the vulture based on a wide range of issues, using a five-point Likert scale. The results indicate that respondents have strong attitudinal disposition towards non-persecution of vultures – a salient determinant of intention to support vulture conservation ($r = 0.66$, $N = 281$, $p < 0.01$). Variables reflecting attitudes and subjective norm were significant predictors of intention to support vulture conservation but perceived behavioral control was not significant. Interventions aimed at conserving vultures in the study area may succeed if strategies highlight the importance of avian scavengers in human societies and target change in personal attitudes that favor nature conservation in general.

1. Introduction

Vultures provide critical ecosystem services and also serve a useful purpose in human societies by helping clean the environment through consuming carrion and meat waste such as bones and skin (Ogada et al., 2016; Thiollay, 2017). Though other scavengers perform similar functions, vultures often seem to do a better job by their numbers, speed of food detection and sociability (Thiollay, 2017). The presence of the vulture in humanized environments therefore may help reduce the risk of diseases outbreak in cities and towns, particularly in developing countries where solid waste management is often not apt (Guerrero et al., 2012). Vulture dominance at a location usually subdues the numbers of mammalian scavengers like dogs and rodents that are known to transfer diseases to humans (Ogada et al., 2012). Therefore, it stands to reason that the absence of vultures in humanized environments may likely lead to increase in population of these mammalian scavengers and the diseases associated with them. For example, the vulture crisis in India triggered an increase in the population of feral dogs that consumed carcasses in urban areas (Ogada et al., 2016). Consequently, a

corresponding increase in rabies cases among humans was recorded, increasing healthcare cost of the Indian government by \$1.5 billion (Ogada et al., 2011).

The hooded vulture (*Necrosyrtes monachus*) and other members of the subfamily Aegypiinae have experienced drastic population decline across the world in the last three decades (Murn and Botha, 2018). In Africa, plummeting vulture populations has been attributed to factors such as poisoning (Ogada and Keesing, 2010; Otieno et al., 2010; Ogada and Buij, 2011), food shortage resulting from land use change (Ogada et al., 2011; Virani et al., 2011), and capture for food and traditional medicine (Saidu and Buij, 2013; Boakye et al., 2019). Consequently, the conservation status of the hooded vulture has recently been reclassified from Endangered to Critically Endangered (IUCN, 2017), making it imperative to pay more attention to its conservation.

Up to the late 1980s, vulture population in Ghana was reported to be stable (Ogada and Buij, 2011), however, recent reports seem to be pointing to the contrary (Gbogbo et al., 2016). In an attempt to carry out a comprehensive nationwide study on vulture population and threats in Ghana, Deikumah (2016) recorded only 1,101 individuals of the hooded

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vulture and concluded that vulture population decline in Ghana may be more serious than previously anticipated.

Studies on vultures in Ghana have been centered on population estimation (Gbogbo et al., 2016; Deikumah, 2019), threats to their survival (Annorbah and Holbech, 2012; Deikumah, 2019) and human uses of the species (Boakye et al., 2019).

Generally, research into the social component of vulture conservation is scanty worldwide (e.g. Santangeli et al., 2016; Morales-Reyes et al., 2017) and in Ghana only a few studies (Ogada and Buij, 2011; Deikumah, 2019) are known to have touched on attitudes towards vultures. Vultures are a species mostly associated with humanized environments and now that they are an endangered species, it would be useful to increase the social aspect of research into their conservation to understand attitudes and behaviors that are likely to have effects (positive or negative) on their survival. This is because most of the current extinction threats emanate from human activities which can be modified or stopped to support vulture conservation efforts (Heberlein, 2012; Reimer et al., 2013). Holistic empirical information from the social and ecological aspects of vulture conservation is crucial in the designing of efficient conservation interventions to save the bird and its associated ecosystem services (Henriques et al., 2018).

The current study aimed to assess behavioral attitudes and intention of residents towards conserving the vulture in the Newmont Akyem enclave (NAE) in the Birim North District of the Eastern Region of Ghana. This area was chosen for the study because an earlier baseline study (Kankam, 2018) on bird monitoring around the NAE indicated the presence of some resident vultures at the inert waste dump site of the mine. Movement of these vultures were observed to be restricted to the mine dump site with no populations in the surrounding villages. This study is therefore designed to predict intention of residents to support vulture conservation should the numbers at the mine dump site increase and spread to neighboring communities. A social-psychology theory, the theory of planned behavior (TPB), was employed to investigate how attitudes and social norms can influence residents' intention to support conservation of vultures in the study area.

1.1. Theoretical framework

The TPB is recognized as a widely used social-psychology theory (Steinmetz et al., 2016) and is rapidly gaining ground in conservation and environmental studies (St. John et al., 2010). The TPB links beliefs to behavior and proposes that human behavior is influenced by personal attitude (attitude - ATT), social pressures (subjective norm - SN), and perceived control over an individual's own behavior (perceived behavioral control - PBC). According to the theory, these three constructs (ATT, SN and PBC) propel the most proximal determinant of human behavior - behavioral intention (St. John et al., 2010; Marchini and Macdonald, 2012) (Figure 1). Attitude refers to one's overall positive or negative evaluation of performing a given behavior. Subjective norms represent a person's perception of whether people important to them would approve of them performing a given behavior. Perceived behavioral control reflects the extent to which an individual perceives the behavior to be under their volitional control (Marchini and Macdonald, 2012).

According to the TPB, an individual will perform a behavior if their behavioral intention towards the behavior is sufficiently strengthened. Therefore, an individual should have a strong intention towards vulture conservation if they have: i) a positive attitude towards vulture conservation; ii) a feeling that they will get societal approval for supporting vulture conservation and iii) a perception that they can easily engage in or avoid activities to conserve vultures.

The TPB has become important in conservation studies because it predicts attitude and behavior better than general attitudinal studies (St. John et al., 2010). The segregation of different determinants of intention and behavior may help to identify specific aspects of attitudes of individuals or societies that need to be manipulated to achieve success in conservation interventions. For instance, the study of general attitudes

may indicate a positive attitude towards conservation of a species, yet a contradictory behavior (e.g. poaching of the same species) may be going on in the same environment. The TPB, therefore, helps to solve problems of this nature by exposing underlying factors that motivate the demonstration of certain attitudes and behaviors.

1.2. Hypothesis

Previous studies (Boakye et al., 2019; Deikumah, 2019) indicate that Ghanaians do have positive thoughts about the vulture and consider it an important bird in cities and towns. Based on this empirical information, we hypothesized that (hypothesis 1): residents' attitude will affect their intention to support the conservation of the hooded vulture. It is also known that Ghanaians do respect social norms (Asiedu and Donkor, 2018) and therefore take the advice of people who are important to them (e.g. family members, friends, community/religious leaders). The subjective norm of the TPB thus forms our second hypothesis (hypothesis 2): residents' perception of what other people will think about their disposition towards the hooded vulture, will affect their intention towards supporting vulture conservation. The presence or absence of barriers and incentives to conserve vultures were expected to have an impact on intention and this formed the third hypothesis, (hypothesis 3): perceived behavioral control will affect residents' intention to support vulture conservation efforts.

2. Materials and methods

2.1. Study area

The study was conducted in communities near the NAE in the Birim North District of the Eastern Region of Ghana; specifically, New Abirem, Afosu, Hweakwae, Ahausena, Ntronang and Nkwateng (Figure 2). The Birim North District has a total land area of 566.48km² with human population of 78,907 according to the 2010 population and housing census. With an intercensal growth rate of 3.6, the population was projected to be at 97,534 in 2019.

The district lies within a semi-equatorial climatic zone that experiences substantial amounts of precipitation in bimodal distribution pattern in a year. This high amount of rainfall and moderate temperatures offer a conducive agro-climate for the cultivation of both food and cash crops in the district. Oil palm and cocoa are popular cash crops cultivated in the area (GSS, 2014). It is therefore not surprising that over two-thirds (73%) of the workforce in the district is engaged at some point on the agriculture value chain (GSS, 2014). The district is also endowed with mineral deposits (e.g. gold) and a forest cover with economic timber

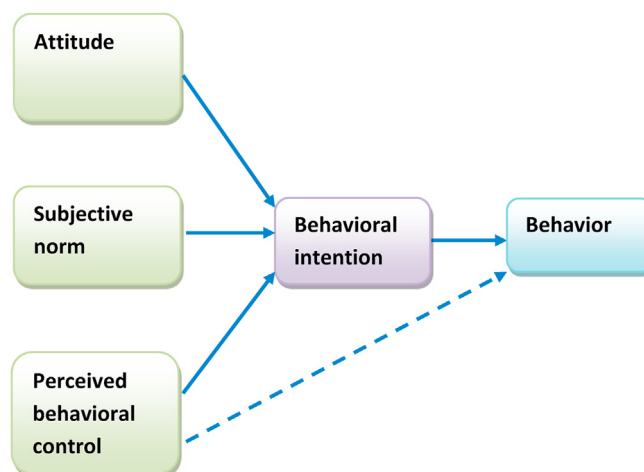


Figure 1. The Theory of Planned Behavior model. Note: behavior was not measured in the current study.

species. The gold deposits are exploited by Newmont Ghana and a host of illegal small-scale miners (*Galamsey*).

2.2. Data collection

The six communities (New Abirem, Afosu, Hweakwae, Adausena, Ntronang and Nkwateng) included in this study were randomly selected from a list of fourteen communities within ten-kilometer radius of the NGRL mine site. Household surveys were conducted in the selected communities from 21st January to 1st February 2020. Systematic sampling was employed to select households for interviews. In townships, main streets were identified and the survey started at the center of the town (Bauer, 2014). From the center (usually the main bus-stop area), every other pedestrian street to the right and left of the main street was selected and every other housing unit off the pedestrian streets was selected for interviews (Bauer, 2014; Maduekwe and Timo de Vries, 2019). When a selected housing unit was non-residential or members of the household declined to grant an interview, the next housing unit was used. The number of households interviewed in a township was proportional to the total number of households in the township and total samples covered at least 10% of the population in the community (Maduekwe and Timo de Vries, 2019). Face-to-face interviews were conducted by university graduates who had training and experience in administering survey questionnaires. All the interviewers were well acquainted with local culture and parlance of the study area. Only one person was interviewed in every selected household. Both males and females were given equal opportunity to grant interviews provided they were 18 years or above and willing to speak to the interviewers. In this study, we report all measures, manipulations and exclusions in the data collection process.

The questionnaire comprised of two sections; one for demographic information and the other for information based on the constructs of the TPB. Demographic data collected include age, gender, occupation, level of education and location. In the TPB section, questions consisted of

statements with a five-point Likert scale ranging from strongly agree (1) to strongly disagree (5). Predictor variables were statements made to measure the three determinant constructs of the TPB (ATT, SN and PBC). The outcome variable (behavioral intention) was also measured with a group of statements that reflect the intended behavior (vulture conservation) (Fishbein and Ajzen, 2010).

Attitudes were measured in terms of positive or negative perceptions of the presence of vultures in respondents' communities. Subjective norm was measured with items that reflect respondents' perceptions about whether their family members, friends and community leaders would approve or disapprove of their decision to either support vulture conservation or hound vultures (injunctive norm). Also, we measured respondents' perception of what other members of their community would do to vultures, and whether they would normally do what other members of their community do (descriptive norm). On measuring perceived behavioral control, items were designed to elicit respondents' perceptions of the presence or absence of incentives/barriers to protect or hound vultures in their communities (Fishbein and Ajzen, 2010; St. John et al., 2010).

Each of the predictor variables as well as the outcome variable was assessed on a separate scale comprising of four questions. However, in testing for the reliability of the items, only two questions under PBC contributed to acceptable Cronbach alpha figure, and so, the non-contributing questions were eliminated (Table 1). Questions were constructed in positive and negative semantics to reflect both positive and negative perceptions about vultures. However, the negatively recorded ones were later reverse-coded before data analysis to return consistency among items in the scales.

2.3. Data analysis

All analysis was conducted in IBM Statistical Package for Social Sciences (SPSS) version 20 (2011) software. Cronbach alpha reliability test was conducted for all scales measuring the three predictor variables

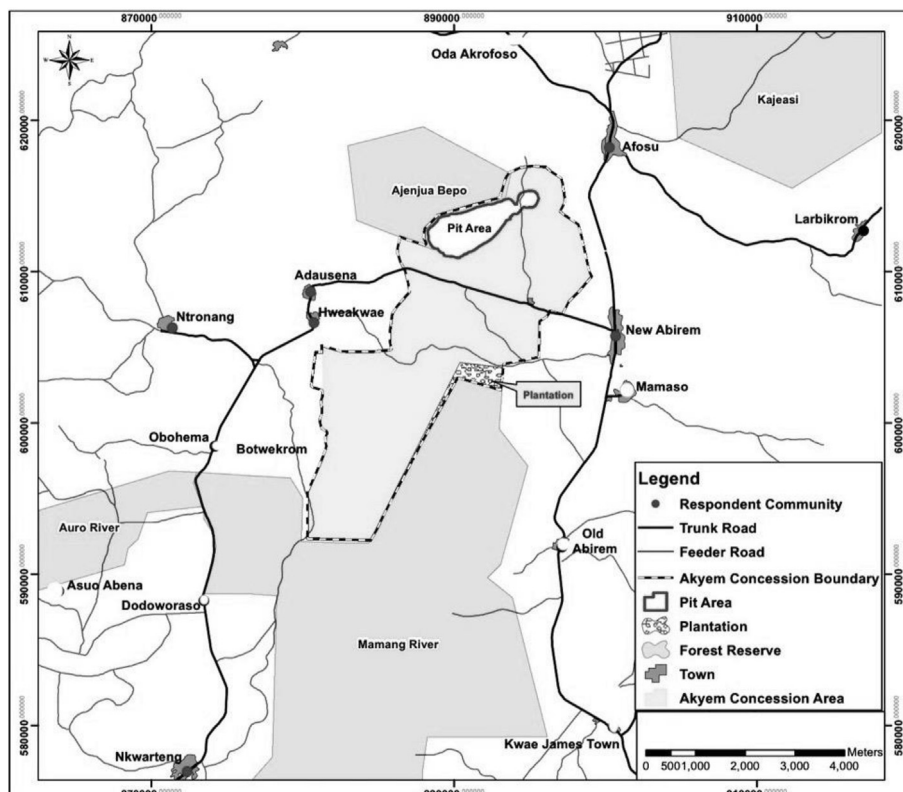


Figure 2. Map of the study area showing study communities.

(ATT, SN and PBC) and the outcome variable (behavioral intention towards vulture conservation). The result indicated acceptable alpha figures for all the scales (Table 1). Pearson product-moment correlation was then performed to find out the relationship between each of the predictor variables and the outcome variable. The relationship between the predictor variables was also established (Figure 1). For further analysis, stepwise multiple regression was conducted in SPSS, using all items under ATT, SN and PBC as predictors and the composite mean of all four items used to measure behavioral intention, as the outcome variable. Stepwise regression automatically does multiple regression several times to remove weak variables and return only variables that explain the distribution best. To ensure non-violation of assumptions, multivariate normality, multicollinearity and homoscedasticity tests were conducted prior to the regression and all the results were found to be in acceptable limits.

3. Results

3.1. Demographic information of respondents

The mean age of respondents was 42 (SD = 17) with minimum and maximum ages being 18 and 110 respectively. These statistics reflect a large amount of variation in the age of respondents. Put into groups, the majority of respondents (51%) were within the age bracket of 30–60, followed by the youthful bracket of age less than 30 years that recorded 30%. The elderly (>60 years) represented the smallest group of respondents with 19%. More females (51%) than males (49%) were encountered, suggesting that the population of females in the Birem North District might have surpassed that of males since the 2010

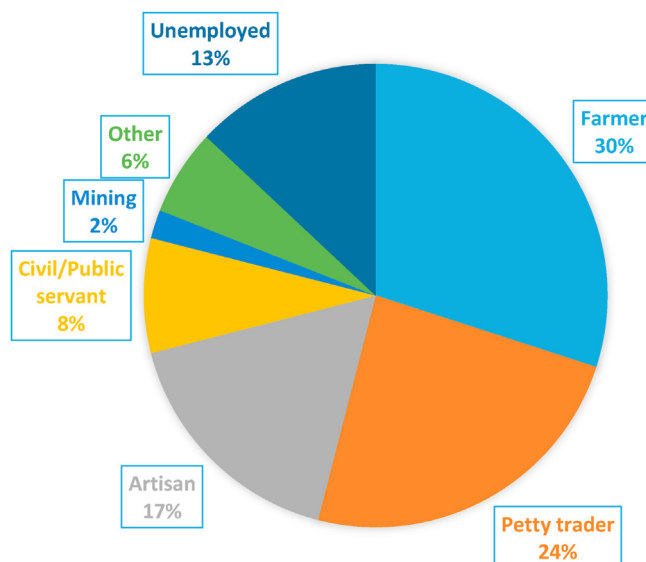


Figure 3. Occupation of respondents.

Ghana Population and Housing Census that reported the contrary. Only 2% of respondents reported not having any form of formal education, while the majority were High School graduates with 43% and 20% terminating at Junior High and Senior High levels respectively. The studied communities are mainly urban and peri-urban and so people engage in a wide range of economic activities to earn their

Table 1. Items used to measure each variable, Cronbach's alpha (α), mean, standard deviation and percentage of response.

Variable code	Variable description/statement	α	Mean	SD	RESPONSE (%)				
					1 – Strongly agree	2 – Somewhat agree	3 – Neither	4 – Somewhat disagree	5 – Strongly disagree
Attitude (ATT) towards vulture persecution		0.71							
ATT1	Vultures are another life form and it's wrong to kill them	1.92	1.31	56	20	8	7	9	
ATT2	It would be useful to kill vultures in order to rid our community of ugly birds	4.20	1.11	5	6	3	34	52	
ATT3	I would like to see more vultures in our community to clean the environment off carrion	1.96	1.08	37	47	3	9	5	
ATT4	Eliminating vultures in our community would be a good thing to do	4.39	3.27	6	6	2	32	54	
Subjective norm (SN)		0.86							
SN1	People who are important to me (family, friends and religious leaders) will not approve of me killing vultures	2.17	1.40	46	26	3	15	10	
SN2	It is important to me to respect the views of people who are important to me	2.12	1.31	42	34	3	12	9	
SN3	Most members of my community will kill vultures when they find them in town	2.93	1.60	28	23	3	20	26	
SN4	It is important to me to do what other members of my community do	2.64	1.64	38	21	2	16	23	
Perceived behavioral control (PBC)		0.77							
PBC1	It is easy for me to kill vultures and sell their parts	4.20	1.25	9	5	1	26	59	
PBC2	I am more likely going to engage in vulture hunting since i can make money from the sale of their parts	3.85	1.49	14	11	1	22	52	
Behavioural intention to support vulture conservation (DV)		0.70							
INT1	I intend to support any efforts towards conserving the vulture in my community	1.91	1.21	50	28	9	6	7	
INT2	I am not likely to kill vultures in my community since their meat cannot be eaten	1.82	1.63	53	29	6	5	7	
INT3	I intend to help educate people on the importance of vultures and the need to stop persecuting them	1.90	1.31	57	21	7	6	9	

living (Figure 3). Though the study was conducted in communities around a gold mining company, only two percent of respondents were employees of the mining company.

3.2. Relationship between attitudes (ATT) and intention

A total of 281 respondents participated in the survey. Agreeing with statements against vulture persecution on a Likert scale of 1 (strongly agree) to 5 (strongly disagree), participants showed a strong attitudinal disposition towards non-persecution of vultures in their responses ($M = 1.87$; $SD = 0.83$) (Table 1). For example, responding to the statement; ‘Vultures are another life form and it is wrong to kill them,’ 76% of respondents agreed strongly or somewhat with the statement, indicating a positive attitude towards non-persecution of vultures.

A Pearson product-moment correlation conducted showed a strong positive relationship between attitude and intention ($r = 0.66$, $N = 281$, $p < 0.01$) (Figure 4). This suggests that when the positive personal attitude towards vultures increases, support for their conservation will also increase among residents of the Birem North District.

3.3. Relationship between subjective norm (SN) and intention

General societal expectations of behavior towards avian scavengers (subjective norm) may have a slight influence on individuals’ behavioral intention towards vultures in the Birem North District. Over two thirds (72%) of respondents strongly or somewhat agreed that people who are important to them will not approve of a decision to kill vultures. However, the composite mean score for the subjective norm on the 1–5 scale was only slightly positive ($M = 2.46$; $SD = 1.25$), indicating that subjective norm may not be a strong driver of positive behavior to vulture conservation in the study area. This was confirmed by a weak positive correlation between subjective norm and intention to conserve vulture ($r = 0.23$, $N = 281$, $p < 0.01$).

3.4. Relationship between perceived behavioral control (PBC) and intention

There do not seem to be external factors that facilitate people’s decisions to persecute or succor vultures in the Birem North District. The majority of respondents (84%) disagreed with a statement suggesting that it was easy to kill and sell vulture parts in the study area. Another high percentage of respondents (74%) also disagreed with the suggestion

that they were likely to engage in killing vultures for commercial purposes (Table 1). However, there was no significant relationship between PBC and intention to persecute or succor vultures, when a Pearson product-moment correlation was conducted (Figure 4).

3.5. Predictors of intention to conserve vultures

Stepwise multiple regression was conducted to predict respondents’ behavioral intention towards supporting vulture conservation in the Birem North District of the Eastern Region of Ghana. Predictor variables comprised of statements made to reflect ATT (ATT1, ATT2, ATT3 and ATT4); SN (SN1, SN2, SN3 and SN4) and PBC (PC1 and PC2) (Table 1). Five models (Table 2) were generated from the stepwise regression process and the best model (model 5) explained 56% of variation in respondents’ intention towards vulture conservation ($R^2 = 0.56$, $F(5, 267) = 67.22$, $p < 0.001$) (Table 2).

ATT and SN emerged significant predictors of behavioral intention but PBC was not significant (Table 3).

More items under ATT predicted intention better than items under SN (Table 3).

4. Discussion

4.1. Attitude

Personal attitude is the most important factor in determining people’s intention towards supporting vulture conservation in the Birem North District. Respondents who believe that the vulture should not be persecuted or killed for no reason, are more likely to support vulture conservation efforts in the Birem North District. Further interrogation of this category of respondents revealed that their reasons were rooted in the belief that vultures are useful in their environment. For example, some respondents believe that harmless creatures like the vulture should not be persecuted by man since they have existence value and roles to play in ecosystems as specialized scavengers. This finding is in line with the finding of Deikumah (2019) in a nationwide study in Ghana where he reported that the majority of respondents were positive towards protecting vultures because, in their opinion, vultures were important in their environment. Similarly, a study conducted in the eastern mid-hills of Nepal also reported that the majority of the respondents showed a positive attitude towards vultures and a desire to support their conservation (Phuya et al., 2016) to improve on environmental quality. Despite this seemingly widespread desire to support vulture conservation, a small number of respondents in the current study expressed aversion towards the vulture and would want them annihilated from their communities. This category of respondents are not likely to support vulture conservation in their communities. Reasons given for the dislike include claims that vultures are ugly, evil and dirty birds, based on their feeding habits. Campbell (2009) observed that some people attribute evil spirits or spiritual powers to vultures due to their (vultures) ‘smart’ adaptive behavior which includes observational perching, intrusive foraging and food theft. These behaviors could be part of the reasons that account for the aversion of vultures in the current study. Similarly, Nikolov et al. (2014) also report that local people in the Maradi region in Niger detest vultures because they believe they are ugly, dirty and barbaric since they feed on remains of their own ‘relatives’.

4.2. Subjective norm

Social motivation also proved an important determinant of intention towards vulture conservation in the study area, however, its effect is behind that of personal attitudes. Residents who indicated they would not harm vultures but have the perception that other members of their community might harm vultures in town were likely to support vulture conservation. People may sometimes engage in certain behaviors because other members of their community are doing the same

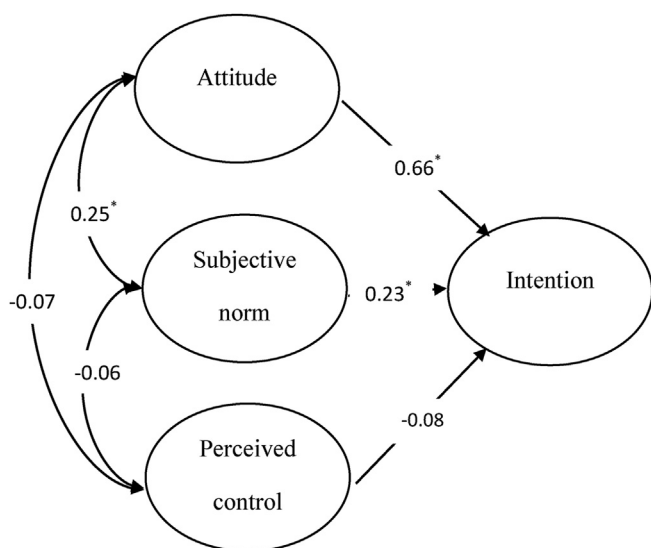


Figure 4. Correlation between the four constructs of the TPB used in the current study.

Table 2. Models resulted from stepwise regression, predictor variables and prediction power (R^2).

Model	Predictor included	R^2	Adjusted R^2	SE of the estimate	R^2 change
1	ATT1	0.465	0.463	0.611	0.465
2	ATT1, ATT3	0.519	0.515	0.581	0.054
3	ATT1, ATT3, SN3	0.530	0.525	0.575	0.011
4	ATT1, ATT3, SN3, SN4	0.546	0.539	0.566	0.016
5	ATT1, ATT3, SN3, SN4, ATT2	0.561	0.553	0.558	0.016

Table 3. Results of best model from stepwise regression predicting intention to support vulture conservation in the Birim North District.

Variable	B	SE	β	p
Attitude				
ATT1	0.359	0.029	0.569	<0.001
ATT2	-0.102	0.033	-0.137	0.003
ATT3	0.172	0.034	0.221	<0.001
Subjective norm				
SN3	0.117	0.027	0.219	<0.001
SN4	-0.085	0.026	-0.170	0.001

(Fishbein and Ajzen, 2010; Collins et al., 2011; Marchini and Macdonald, 2012). Contrary to this, the finding here suggests that respondents in the study area are not likely to follow suit on what other members of their community do. As an urbanized and mining area, the population of the study area is heterogeneous and consists of people with diverse cultural backgrounds that influence decision-making. This may account for why individuals may not be willing to do what other members of their community are doing based on cultural beliefs and knowledge. Still buttressing the same point, individuals who feel that it is not important for them to do what other members of their community do, are likely to express intention to support vulture conservation regardless of the opinion and advice of other members of their community. The relatively high percentage of residents with some formal education (98%) and probable exposure to vulture conservation awareness, could account for the independence in the thoughts of respondents. Some respondents clarify that there is no need to copy other members of a community to support vulture conservation, rather one needs to think about the benefits of the presence of vultures in the environment. Deikumah (2019) reports that 75% of Ghanaians indicate support for vulture conservation because they think it is an important bird in their environment.

Respect for the views of elders and people in one's close circles is considered an important virtue in Ghanaian culture (Asiedu and Donkor, 2018), yet this aspect of the subjective norm (injunctive norm) did not contribute to predicting intention to support vulture conservation in the study area. In Ghana, it is generally believed that family leaders, community leaders and religious leaders are a repository of great knowledge and wisdom (Asiedu and Donkor, 2018) and so it is considered ideal to pay heed to their advice and opinion.

4.3. Perceived behavioral control

The PBC construct did not show any effect on the peoples' intention to support vulture conservation. This may not be surprising because there are no incentives to motivate people to want to support vulture conservation, neither are there any deterrents to prevent people from persecuting vultures. Wildlife regulations in Ghana generally aimed to protect animals in the wild and largely precludes urban wildlife or wild animals in humanized environments. Perceived behavioral control generally seem to be inefficient in predicting conservation intentions and behavior. For example, in earlier conservation studies, Ward (2016) reported no significant

relationship between PBC and intention to conserve yellow-shouldered amazon parrots in Bonaire just as the findings of Wauters et al. (2010) which indicated that PBC did not influence conservation intention of South American landowners.

4.4. Limitations of the study

The extent of coverage of this study is its major limitation. Due to limited resources, only one administrative district (out of 21) in the Eastern Region of Ghana was covered. The Birem North District is mainly rural. Ideally, a wider coverage to include major cities would have allowed comparing attitudes of rural residents and urban residents towards the vulture. In terms of data collection, the TPB module used suggest that target behaviors may be measured in terms of Target, Action, Context and Time. However, time limits were not given to behavioral actions measured in this study because it made some questions sound as if respondents were coaxed to say when they would engage in inappropriate behavior (vulture haunting).

5. Conclusion

Intention to support vulture conservation in the Birem North District is strongly influenced by attitudes of individuals and not so much by social norms or any external influences. In effect, any vulture conservation efforts in the Birem North District can consider strategies that affect personal attitudes. This may help achieve conservation goals faster, particularly if such approaches are used together with strategies that involve the use of economic incentives. Further studies with wider coverage (nationwide) and broader scope is recommended to fully understand the causes of vulture population decline, and for that matter, effective ways to conserve them in Ghana. Such studies must consider both human and environmental factors that lead to vulture population decline so that useful empirical data could be generated to guide policymakers on ways to conserve vultures in Ghana. Per the findings of the current study, policy towards vulture conservation should focus on conservation awareness education to highlight the importance of avian scavengers and instil a love for nature in citizens. This can engender positive attitudes towards living with vultures in cities and towns. The current study confirms the findings of earlier conservation studies (Ward, 2016; Marchini and Macdonald, 2012) that ATT and SN appear better predictors of conservation intentions than PBC. Vulture haunting and persecution in Ghana may partly be attributed to

negative perceptions about the feeding habits and general behavior of the bird. Education through conservation awareness creation can help dispel misconceptions and engender positive attitudes towards the vulture as an important and specialized scavenger in humanized environments.

Declarations

Author contribution statement

Bright O. Kankam, Haruna Abukari: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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