Original Research Article

Experiential Factors as a Determinant for Climate Change Mitigation Behavior:A case of Tourist Hotel Managers in Naivasha Sub-County, Kenya

Abstract

Climate change is typically abstract, large scale, slow and often unrelated to the welfare of people's usual activities. There are however moments when theconsequences of climate change are readily apparent, such as through experiencing extreme weather events.This study examined the association between personal experiences with extremeweather events together with emotions and taking actions that mitigate the consequences of climate change, a largely under researched topic.This relationship was tested among182 randomly selected tourist hotel managers in Naivasha Sub-County in Kenya using paper and pencil survey techniques. An instrumentmade up of questions on the managers' extent of their personal involvement with extreme climate risks and events was utilized. Another set of questions that rated the managers' level of emotions towards climate change was also included.The study identified two categories of climate change mitigation behaviors (CCMB) that are adopted by managers namely efficiency and curtailment practices.A beta regression model was used to examine the relationship between experiential factors and CCMB. Findings indicate a moderate engagement in CCMB among the surveyed managers. Experiencing disasters was negatively and significantly associated with both curtailment and efficiencyCCMB. Emotions were positively associated with efficiency CCMBbut had a negativeassociation with curtailment CCMB. The findings suggest that public education would benefit from strategies that focus on simulating experiencing disasters and emotions.

Keywords: climate change mitigation behaviors, experiential factors, emotions, beta regression

1. Introduction

Climate change has major and intensive effects in the tourism industry. Identifying factors that are associated with climate change mitigation behavior (CCMB) is attracting considerable research interest. Among these, the notion that and individuals experiential factors have the potential to engage with climate change has been suggested in the literature. Available evidence

on the association between experiential factors and CCMB especially in the tourist hotels is however controversial and deficient. A variety of studies have reported evidence of notable effects of environmental experiential factors on climate attitudes and behaviors, while other studies have found no effects. The mixed results in the literature are difficult to reconcile due to a wide variety of methodological approaches, various operational definitions of CCMB, difference in adopted study designs and diverse human populations that are studied. This inadequacy limits the design of evidence based interventions to enhance tourist hotel managers' broad and extra CCMB. Need therefore exists to examine the magnitude of CCMB and associated experiential factors of managers in tourist hotels with more refined research methods. Existing studies advance a proposition that tourist hotel managers who are less likely to adopt pro-environmental behaviors are assumed to have different experiential backgrounds. This assumption was tested within the context of Naivasha Sub-County, which hosts Lake Naivasha, an officially recognized Ramsar site and is a region currently experiencing significant climate change impacts in the form of increasing severe droughts, strong winds, heat waves, erratic rainfall patters, rising water levels of the lake and floods.

2. Review of Literature

Experiencing natural environmental disasters can affect people both physically and psychologically. Some research has shown that experiencing natural disasters can affect public health outcomes such as mortality, injuries, infectious diseases, economic impact, and produce a range of psychosocial consequences (Shultz et al., 2005). Natural disasters such as hurricanes, earthquakes and floods can also lead to post-traumatic stress disorder (PTSD), depression, anxiety disorders, and even elevated rates of suicide (Sönmez & Hocaoglu, 2023).

There is also another line of research focusing on how experiencing extreme weather can affect attitudes and pro-environmental concerns, the experience-perception link(Bergquist et al., 2019). For example, Van der Linden et al., (2015)found that experiencing extreme weather events was positively related to environmental risk perception. Similarly, Li et al., (2011)reported that people were more likely to make pro-environmental donations after interpreting local temperature increases as evidence for global warming. Some studies however show that experiencing extreme weather events do not increase environmental concerns(Whitmarsh, 2008). One meta-analysis reported that self-reported experiences with extreme weather only had a small

positive effect on belief in climate change, while experiencing local weather change had a medium sized effect (Hornsey et al., 2016). These findingssuch as negative emotions for example fear when thinking about climate may be interpreted as suggesting that extreme weather events increase attention to climate change under certain conditions. This is particular in situations where extreme weather events are experienced asabnormal local temperatures (local warming), when extremeweather are temporarily proximal, or when extreme weatherevents are associated with financial damages (Sisco et al., 2017).

Studies examining the link between personal experience withclimate change and subsequent beliefs and actions are in their development stages, but there is some circumstantial evidence for anassociation. For instance, Lang & Ryder, (2016)used googletrends (from 2006 to 2012) and found that search terms related to climate change intensified in the months following tropicalcyclones, suggesting that people attributed extreme weatherevents to global warming. Another study compared studentcohorts before and after an extreme weather event and foundmore favorable attitudes toward a climate-protecting politicianand higher environmental concerns after the events (Rudman et al., 2013). Similarly, individuals affected by the UK winterflood in 2013/2014 reported stronger negative emotions, greaterperceived vulnerability, increased salience of climate change, andhigher risk perception compared to a nationally representativesample (Demski et al., 2017). More closely linked to pro-environmentalactions, Rochford & Blocker, (1991)) foundthat people who perceived the flood in Tulsa, Oklahoma, in1986 as preventable were more likely to get involved in floodrelatedactivism. Results from a national survey across UKshowed that first-hand experience of flooding was positivelylinked to environmental concern and even greater willingnessto save energy to mitigate climate change (Spence et al., 2011).

Outstandingly, research on the experience-perception link seemsto focus on cognitive consequences of experiencing climatechange. Experiencing natural disasters can however causesevere distress (Kozu & Gibson, 2021). Literature expects that such experiences can also affect emotions. Forexample, research in the USA has found that the mean temperatureanomalies has been positively related to worrying about climatechange (Donner & McDaniels, 2013). Another study demonstrated that inducedemotions tend to increase pro-environmental

policyacceptance with a link mediated by belief inanthropogenic causes natural disasters (Lu & Schuldt, 2016).

Although the experience-perception link of natural disastershas been tested before, past research is limited by measuring(retrospective) self-reported experience, and by using crosssectional designs or cohorts in before and after measures (Reser et al., 2014). As a result, knowledge aboutthe causal effects in the experience-perception link is severely limited. For instance,previous beliefs on the causes of climate change may be attributedon the causes of climate-related natural events in order to alignwith the previous beliefs. In the first of its kind, Bergquist et al (2019) used a crossover design, recruiting the same participantsbefore and after experiencing a natural disaster. This designenabled the use repeated-measures in testing if experiencingextreme weather event influences beliefs about climate change,and intentions to take actions. Moreover, as experiencing anatural disaster hasbeen shown to result in severe desolation(Goenjian et al., 1994). The study hypothesized thatafter experiencing a natural disaster people would report strongerchange. Hence, the study suggested that when people think about climatechange after experiencing extreme weather, climate change willbe perceived with stronger negative emotional activation thanbefore. The study recruited residents of Florida, USA before and after hurricane Irma in EleventhSeptember, 2017 to test its hypotheses.This study reported that experiencing the hurricane Irma intensified Floridians negative emotions toward climate change,strengthened their beliefs in that Irma was actually caused byglobal warming, and fostered a willingness to sacrifice to reachenvironmental solutions. The current study adds to this study by examining the joint association of experiential factorsusing a validated environmental disasters and emotional attachment scale with multiple items on CCMBamong tourist hotel managers using the novel beta regression approach in a developing world.

The aim of this study was to examine the relationship between experiential factors on CCMB. In doing so, the study also controlled for socio-demographic characteristics. As such, the study expected to develop important insights into how tourist hotel managers respond to climate change and the experiential factors that are associated with their responses.

3. Research Methods

3.1 Research Design

This study was guided by a pragmatism approach that arises out of actions, situations, and consequences relating to CCMB. The pragmatic approach is beneficial since it evaluates ideologies, theories, proposition and beliefs in terms of their success in practical application. This required the detection of CCMB as a socially situated problem and the choice of adequate research methods to examine the issue.

The study was a cross-sectional survey where data was collected from tourist hotel managers at a single point in time. The study was primarily concerned with describing, recording and interpreting experiential factors and establishing their role on CCMB among managers of the tourist hotel facilities in Naivasha sub-county in Kenya.

3.2 Target Population and Sampling

The target population constituted of 85 medium and luxury priced tourist hotel facilities in Naivasha sub-county in Kenya. These hotels that pay a license fee of between Kshs. 25,000-100,000 annually and serve both local and international tourists. Three groups of the hotels were identified based on the amount of licence fee paid as the stratification criteria as follows; category A (Ksh 75,000-100,000), category B (Ksh 50,000-70,000) and category C (Ksh 25,000-35,000). A list of the eligible tourist hotel facilities was obtained from the revenue collection section of Naivasha Sub-County. The list had a total number of 85 facilities that pay annual licensing fees of between Kshs 25000 and 100000 of which 13 were in category A, 20 in category B and 52 in C depending on the amount paid.

A two stage cluster sampling technique was employed. Samples of the managers of tourist hotels were chosen by first selecting a sample of tourist hotels and then selecting some of the managers in each of the selected hotels. Next an initial study was conducted to identify the basic characteristics of the tourist hotels and the number of personnel in management positions. It emerged from this exercise that on average the target hotels had four members of staff in management positions. The target population was thus 340 hotel managers.

Following Krejcie and Morgan (1970) sample size determination formula, 70 tourist hotels were randomly selected in the first stage. Using the same formula, a minimum sample size of 180 tourist hotel managers were required.

$$s = \chi^2 NP(1-P) \div d^2 (N-1) + \chi^2 P(1-P).$$

s = required sample size.

χ^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

In the second subsequent stage, a sample of 182 managers was randomly selected using a modified Kish Grid method as suggested by Clark and Steel (2007). This method uses flexible intermediate designs between the two extremes and which optimize survey costs and are statistically efficient.

Table 1: Sample Size

License category (Kshs)	Total number (PSUs)	Target Population (SSUs)	Required Sample size (PSUs)	Required Sample size (SSUs)
75,000-100,000	13	52	11	28
50,000-70,000	20	80	16	43
25,000-35,000	52	208	43	111
Total	85	340	70	182

3.3 Study Instrument

The main data collection tool that was used in this study was a structured self-administered questionnaire. The study used an instrument made up of questions on the managers' extent of

their personal involvement with extreme climate risks and events. Another set of questions that rated the managers' level of emotions towards climate change was also included. Questions on the managers' experiential characteristics had items adapted from Bergquist, Nilsson and Schulz (2019). This study opted for the frequency that is the number of environmental disaster experienced in the previous 5 years. A set of questions that rated the managers' level of emotions towards climate change as concern to the tourism and the hotel industry was also included.On a scale of 1-5, the managers expressed their feelings towards climate change as a concern to the tourist hotel industry with items ranging from 1= Not at all to 5 = To a very great extent. The items measuring emotions consisted of 7 descriptors such as distressed, anxious and hopelessness and so on.

The questionnaire also had another section that established the general socio-demographics of the managers and their establishment. The managers' demographic data particularly on age, sex and education was also collected.

The last section of the questionnaire contained questions on CCMB as the dependent variable. This section sought the frequency of application of various practices recommended by United Nations World Tourism Organization-Environment Programme (UNWTO-UNEP) for hotel establishments to mitigate climate change(World Tourism Organisation & United Nations Environment Programme, 2008) .The focal outcome of interest, was a set of 24 items on managers self-reported behavioural engagement in climate change mitigation which were measured on a five likert scale ranging from 1 = Never to 5 = Always.

3.4 Reliability and Validity Tests

The items used in this study were first extracted from literature on climate change mitigation behaviours and associated factors. The items selected for each variable were measured subjectively using multiple variables. This initial exercise ensured that the items in the survey instrument were not only complete but more importantly reliable. Experts in tourism and research methodology were then used to assess the validity of the selected items. The experts were requested to identify if the set of questions extracted from literature actually measured the intended constructs. They were advised to make any change to the wording of the questions and to add other items if necessary. Their comments were subsequently incorporated in a revised questionnaire.

Conducting a pre-test was meant to test the study questionnaire for potential misunderstandings or problems and consequently make appropriate corrections on identified weaknesses and inadequacies. The questionnaire items were subjected to a pre-test using a sample of 15 tourist hotel facilities in the neighbouring Nakuru City. The chosen facilities had similar characteristics as those in the actual study. An additional section was added to ask respondents in the pilot study about the time it took to complete the questionnaire; comprehension of instructions; ambiguity of terminology and any recommendations for questionnaire improvements.

3.5 Data Collection

A paper and pencil interviewing (PAPI) technique was employed in the current study. The method was found to be appropriate with tourist hotel managers, a target audiences that was challenging to reach. Further, it boosted the response rate and helped in clarifying emerging issues to the respondent when necessary. The PAPI technique is useful in situations where a complicated problem is being investigated, such as climate change in this study. It is however

found to be costly in terms of time and money as sometimes more than one session was required to complete the survey. Concerns of the presence of the researcher in biasing the response by the respondents have been raised. This was circumvented by minimizing intervening with the respondents answering of the survey through first clarifying the study purpose and avoiding leading questions.

A self-administered paper and pencil questionnaire was distributed by the researcher with the help of three research assistants. The filling out of the questionnaire was expected to last for around 20 minutes as estimated in the pilot study. In most instances, questionnaires were left behind with the respondents to be filled at their own convenient time due to work related commitments. Prior to the survey, the sampled respondents were informed about the purpose and nature of the research and that the confidentiality and anonymity of the information they provided will be maintained throughout the study.

3.6 Data Management and Analysis

Data from the questionnaires was cleaned, counter-checked for accuracy entered into a computer while missing and spurious data were imputed automatically. Exploratory data analyses were conducted to verify that the data does not violate the assumptions of a normal distribution. Numerical data were summarised using means (± SD), median and the 25^{th} and 75^{th} percentiles. On the other hand, categorical data was presented using frequencies and percentages. The data was further presented using graphs such as line graphs and tables. The individual climate change mitigation behaviour and socio-cultural characteristics scores that are in nature of the likert scale were not be interpreted in their raw form but were converted to Percentage of Maximum Possible (POMP) scores. This involved taking the raw score and subtracting the minimum score and then

dividing the result by the possible scoring range. This scoring method effectively standardized the scores to allow comparison across alternative scoring methods and instruments (Fischer and Milfont, 2010).

Factor analysis using Principal component Analysis (PCA) were applied in order to isolate the major dimensions of CCMB. Items with either poor loading scores or cross-loadings were removed. The Kaiser rule of retaining only factors with Eigen values greater than one was used. The specific items in each of the identified dimensions of CCMB were aggregated for every respondent. These identified dimensions of the outcome were subsequently used in all other analyses in the study. The Cronbach's alphas (α) of these scales were computed.

A correlation analysis was initially conducted in order to examine the relationship between the different dimensions of CCMB and experiential factors. This exercise also helped to identify if multicolinearity was an issue of concern with the studied variable.

A variable dispersion beta regression model that is commonly used by practitioners to model outcome variablesthat assume values in the standard unit interval (0,1) was then employed to establish the significant socio-cultural correlates of CCMB in this study.This model is based on the assumption that the dependent variable is beta-distributed and that its mean is related to a set of regressors through a linear predictor with unknown coefficients and a link function (Cribari-Neto & Zeileis, 2010). The model further includes a precision parameter which may either be constant or depend on a (potentially different) set of regressors through a link function as well. The choice of this model was informed by the fact that it naturally

incorporatescommonlyobserved featuressuchasheteroskedasticityorskewnesswhichis usually notable indatatakingvaluesinthestandardunitinterval, for instance ratesand proportions as was the case with both dimensions of CCMB in the current study. To help the interpretation of observed coefficients in this model, the marginal effects of the role of the socio-cultural correlates of CCMB were also calculated with the help of both Stata version 11 software and the betareg package in the R computing environment Version 4.2.2.

3.8 Results

A total of 182 managers responded to this survey. The sample was not evenly-balanced in terms of gender, age and education attainment (Table 2). There was greater participation of males (70%), middle-aged (between 30 and 49 years at 93%) and moderately educated individuals (that is diploma holders at 43%). Further, a majority of the respondents (37%) reported that they had 5-9 years' work experience. In addition, most of the respondents described their job title as head of department (41%). It is also important to point out that 68% of the respondents indicated that they were not members of any environmental group.

Table 2: Demographic Profile of Respondents

	Proportion	SE	(95% CI)	
Gender				
Female	0.30	0.03	0.23	0.37
Male	0.70	0.03	0.63	0.77
Age				
Below 29 years	0.03	0.01	0.00	0.05
30-39 years	0.52	0.04	0.44	0.59
40-49 years	0.41	0.04	0.34	0.48
Above 50 years	0.05	0.02	0.02	0.08
Educational Attainment				
Secondary	0.03	0.01	0.00	0.05
Certificate	0.16	0.03	0.11	0.22
Diploma	0.43	0.04	0.36	0.50
Degree	0.37	0.04	0.30	0.44
Post Graduate	0.01	0.01	0.00	0.03
Work Experience				
Below 4 years	0.08	0.02	0.04	0.12
5-9 years	0.37	0.04	0.30	0.44
10-14 years	0.24	0.03	0.17	0.30
Above 15 years	0.31	0.03	0.25	0.39
Job Title				
General Manager	0.25	0.03	0.18	0.31
Head of Department	0.41	0.04	0.33	0.48
Head of Section	0.34	0.04	0.28	0.42
Member of Environmental Group				
No	0.68	0.03	0.61	0.75
Yes	0.32	0.03	0.25	0.39

Initially, the factorability of 24 climate change mitigation items was examined. Several well recognized criteria for the factorability of a correlation were used. Firstly, it was observed that 16 of the 24 items correlated at least 0.3 with at least one other item, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.73, above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant (χ^2 (153) = 840.26, $p < .05$). The diagonals of the anti-image correlation matrix were also all over 0.5. Finally, the communalities were all above 0.3, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable. Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors underlying the short version of the CCMB. A two factor solution, which explained 49% of the variance, was preferred because of: (a) its previous theoretical support; (b) the 'levelling off' of Eigen values on the scree-plot after two factors; and (c) the insufficient number of primary loadings and difficulty of interpreting subsequent factors. There was little difference between the two factor varimax and oblimin solutions, thus both solutions were examined in subsequent analyses before deciding to use an oblimin rotation for the final solution. The Cronbach's alphas were acceptable: 0.68 for efficiency and 0.63 for curtailment CCMB.

Composite scores were created for each of the two factors. Higher scores indicate a greater use of the given mitigation practice. Although an oblimin rotation was used, a strong positive correlation existed between the two dimensions of CCMB ($r = 0.64$, $p < 0.05$). Overall, these analyses indicated that two factors were underlying responses to the CCMB items and that each of the two factors was moderately internally consistent.

Descriptive statistics for both dimensions of CCMB are presented in Table 3. The managers had a median score of 0.66 (25^{th}-75^{th} percentile = 0.23-0.86) in curtailment CCMB and 0.46 (25^{th}-75^{th} percentile = 0.36-0.79) in efficiency CCMB.

Table 3: Descriptive Statistics of the Two Dimensions of CCMB

Type of CCMB	Mean	Median (25^{th}-75^{th} Percentile)	Skewness	Kurtosis
Efficiency	0.49 (0.16)	0.46 (0.36-0.79)	0.43	2.17
Curtailment	0.59 (0.20)	0.66 (0.23-0.86)	-0.29	1.59

The skewness and kurtosis were not within a tolerable range for assuming a normal distribution and visual examination of the histograms suggested that the distributions were not approximately normal. Mitigation curtailment behaviour was negatively skewed. Efficiency behaviour had a positive skew. Further examination of the observation that the scores on curtailment behaviour are skewed offer additional support (One-sample Kolmogorov-Smirnov (K-S) test $D = 0.16$, $p < 0.05$). This test offers further formal support that the curtailment data is not normally distributed. Additional formal analyses show that scores on efficiency CCMB are skewed (One-sample Kolmogorov-Smirnov (K-S) test $D = 0.15$, $p < 0.05$). The test offers further formal support that the efficiency behavior data is not normally distributed. The data were therefore well suited for beta regression analyses.

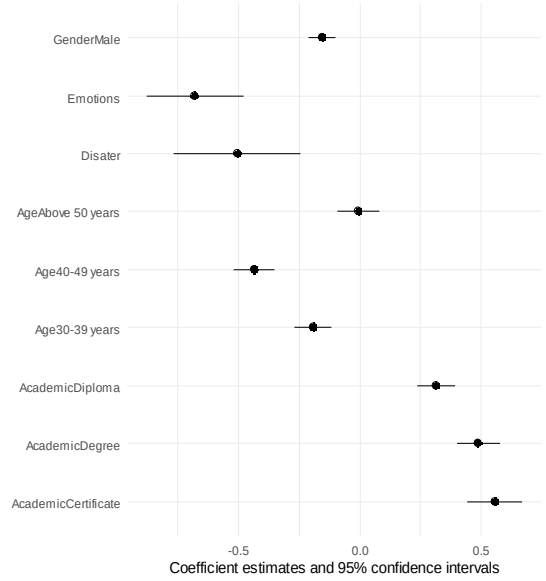
Both efficiency and curtailment CCMB were positively and significantly correlated with each other (Table 4). Further, both efficiency and curtailment CCMB had inconsistent correlations with the two dimensions of experiential factors.

Table 4: The Descriptive and Correlation Statistics of Experiential Factors

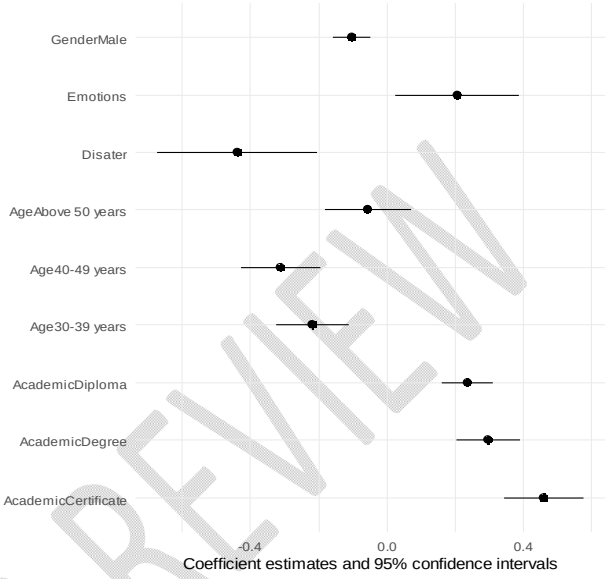
	Variable	Mean (SD)	1	2	3	4
1	Curtailment CCMB	0.59 (0.2)	1			
2	Efficiency CCMB	0.49 (0.16)	0.57	1		
3	Frequency of Disasters	0.44 (0.17)	0.10	0.01	1	
4	Emotions	0.68 (0.17)	-0.26	0.19	0.33	1

The association between experiential factors and CCMB of the surveyed tourist hotel managers are presented in Figure 1. A beta regression model revealed that the two dimensions of experiential factors had varied statistical association with both dimensions of CCMB. Experiencing disasters was negatively and significantly associated with both curtailment (β = -0.51, ρ <0.05) and efficiency (β = -0.44, ρ < 0.05) CCMB. Emotions were positively and significantly associated with efficiency CCMB (β = 0.21, ρ < 0.05) but had negative statistical association with curtailment CCMB (β = -0.68, ρ > 0.05).

Curtailment CCMB



Efficiency CCMB



4. Discussion

A two dimensional typology of CCMB consisting of curtailment and efficiency practices was demonstrated in this study. The study findings further indicate a moderate engagement in CCMB among the surveyed tourist hotel managers. The reported results suggest that experiential factors explain extra and broad commitments to mitigate climate change although the relationship is complex and varied.Experiencing disasters was negatively and significantly associated with both curtailment and efficiency CCMB. Emotions were positively associated with efficiency CCMB but had a negative association with curtailment CCMB.

The finding that CCMB is two-dimensional is consistent with the categorization described by some literature (Abrahamse *et al*., 2005; Flemming *et al*., 2008; Matsumoto & Sugeta, 2022) but differs with other research that suggests that CCMB is made up of many more dimensions (for instance,Gillis (2016). Curtailment behaviorshave been described as repetitive efforts that reduce

consumption (Matsumoto & Sugeta, 2022). Efficiency behaviors on the other hand, are defined as once in a time actions that involve the adoption of a technology that produces the desired or intended result timely (such as purchasing energy efficient electrical appliances). Differences in results emanate from the use of measurement of variables. The current study used multiple measures of variables while much of the existing literature tends to use single measures.

The reported results show that experiencing disasters was negatively and significantly associated with both curtailment and efficiency CCMB. A closer examination of the functional relationshipindicated a positive inverted U shaped association between experiencing calamities and efficiency mitigation behaviors in the mean model but a negative U shaped relationship in the precision model. Taken together these findings are indicative of a threshold for the role of experiencing environmental hazards and CCMB. The reported results imply that respondents who had first-hand experience with environmental related calamities were unlikely to report CCMB uniformly when compared to those without such experience.

This finding is in contrast with the mainstream opinion in the literature that experiencing environmental catastrophes induces individuals to undertake significant climate change mitigation activities (Harnett, 2017; Van der Linden, 2014). In addition, most of the existing literature examines the role of only a single environmental hazard such as experiencing floods or air pollution by the general public (Munoz-Carrier *et al*., 2020; Ogunbode *et al*., 2019; Whitmarch, 2008). This literature nonetheless concludes that extreme weather experiences have the potential to increase engagement in climate change. A study conducted in England demonstrated a contrary result with flood victims having very little differences from other respondents in their understanding of and responses to climate change (Whitmarsh, 2008). The same study however reported that experiencing air pollution had significant associations on both

perceptions of and behavioural responses to climate change. Another study with the public in the UK showed that the relative explanatory power of personal experience with extreme weather was not particularly strong (Van linden *et al*., 2015). This result may be explained by the fact that a perceptual connection needs to be made prominent in order for individuals to essentially attribute their adverse environmental experience to climate change (Whitmarsh, 2008). A longitudinal qualitative study in New Zealand reported that entrepreneurs in the Small and Medium Enterprises (SMEs) tourism sector who had been affected by extreme weather events had attitudes and behaviours towards climate change that differed significantly from those unaffected (Hall, 2006).

It has been noted that the role of experiential factors on CCMB is mainly through prompting the way individuals perceive the proximity and implications of climate change and individuals' differences in the subjective attribution of extreme weather events to climate change (Ogunbode *et al*., 2019). Existing literature further provides at least three reasons why experience with unfavourable environmental experience should lead to the undertaking of desirable climate change mitigation behaviours (van der Linden, 2014; 2015). The first postulation suggests that affect which is viewed briefly as fast and associative information guides the perceptions of risk which it turn direct climate change mitigation practices. In the second explanation, affect is taken to flow from cognitive appraisals (in other words affect is thought of as a post-cognitive process). Finally, a dual-process model has been suggested which integrates aspects from both of the above two theoretical perspectives.

The first two explanations seem at the onset not to sufficiently explain the threshold of experiencing environmental disasters and CCMB that was demonstrated in the current study.The third approach however seems to suggest a close link between personal experiences with

environmental calamities, affect and risk perception. This observation resonates well with the experiential theory proposed by Kolb (2014)which takes a more holistic approach and emphasizes how experiences, in addition to cognition, environmental factors and emotions, influence the learning process. Currently, studies are yet to clearly unravel the relationship between the three aspects of personal experience, affect and cognition with environmental hazards. One study conducted in China, demonstrated an improvement in the individuals' perception of climate change had the potential to increase the desirability of mitigation behaviours particularly on water conservation. Individuals however only increase their engagement with climate change mitigation if they attribute their experiences of extreme weather effects to climate change (Chen *et al*., 2023). Otherwise individuals may simply ignore the threat or deny the existence of climate change. Further, there is some limited literature that indicates that risk perception and affect reciprocally influence each other in an even feedback mechanism (Van Der Linden et al., 2014). In short, the difference in findings from the current study and past research can be explained by the failure of the latter to appreciate the cognition-emotion dilemma in the context of climate change mitigation actions.

It is also important to mention that compared to many other hazards, the threat of climate change is unique (Breakwell, 2010). In this regard, two reasons have been advanced in the literature. First, climate change has wide scope and breadth and different individuals comprehend it variously. Second, climate change is not directly situated in our daily settings. Appreciating both reasons may help explain the discrepancies in existing research findings.

Moreover a recognition of the cognition-emotional predicament is convincing since more effective public engagement with climate change requires risk communication strategies that are able to effectively take into account the way in which cognitive and experiential processes shape

and influence public perceptions of climate change (Marx et al., 2007). It may appear that the negative significant association observed in the current study can be explained as the failure of the surveyed managers of hotel facilities to successfully link personal experience and affect. Examining the conceptual relationship between personal experiences, affect and risk perception is crucial in improving understanding on how emotional and cognitive processes shape individual perceptions of climate change.

These results that emotions are associated with CCMB are not consistent with research conducted in the developed world (Leiserowitz, 2006)with most indicating a strong and significant relationship. Other studies have however argued that emotion explain very little variance in pro-environmental actions (Sjoberg, 2006, 1998). The differences in findings occur primarily from variations in the definition and measurement of the concept of emotion. Studies tend to use either the term emotions, affect or attitude interchangeably (Van der Linden, 2015) and consequently causing much confusion and differences in findings in climate change studies. Therefore, if affect is operationalized as an attitudinal measure and since the term emotion is often mistakenly paralleled with affect, it is easy to falsely conclude that emotions are an important determinant of pro-environmental behaviour.

The term emotion is seen in literature as basically a strong feeling that derives from one's circumstances, mood, or relationships with others. Emotion is further described as a complex experience of consciousness, bodily sensation, and behaviour that reflects the personal significance of a thing, an event, or a state of affairs (Mauss & Robinson, 2009). Affect on the other hand indicates a more subtle form of emotion which is defined as a positive (like) or negative (dislike) evaluative feeling towards an external stimuli (Peters & Slovic, 2007). An affective response is therefore described as a first, associative and automatic reaction that guides

information processing and judgment (Slovic *et al*., 2007). Attitude is defined widely as the positive or negative feeling that an individual holds about a psychological object (Ajzen & Cote, 2008). It is also important to observe that Slovic*et al*. (2007) are careful not to confuse the term emotion with affect and duly acknowledge the similarities between them. In addition, Sjoberg (2006) contends that if affect is operationalized as an evaluative measure (that is like or dislike) this tends to be closer theoretically to a measure of attitude.

While the results of the current study indicate a significant linkage between self-reported emotion status and both climate change curtailment and efficiency activities it is important to point out that this relationship has an upper threshold and varies with the type of climate change mitigation actions. That is emotions have a positive and practical significance up to moderate levels beyond which diminishing effects set in with notable variance in the precision model in climate change curtailment behaviors. This result separates the current study from existing studies. The finding is sensible as individuals differ and have varying emotional thresholds especially with emotions. The reported result is significant and it adds to the discourse on the role of emotions on climate change mitigation behaviour especially in the hotel sector. The result indicates that a clear link needs to be made significant in order for people to actually causally attribute their emotions to climate change.

5. Conclusion

The objective of this study was to examine the role of experiential factors on CCMB among managers of tourist hotel facilities within Naivasha Sub-county in Kenya. This study provides empirical evidence for a two-dimensional structure of CCMB namely curtailment and efficiency activities and also highlights important differences in their experiential correlates. Curtailment actions are generally routine while efficiency activities have an underlying initial cost

implication and are infrequently implemented. The surveyed managers had moderate to high levels on the two dimensions of experiential factors. Findings further indicated a statistically significant but varied relationship between the two dimensions of experiential factors and both curtailment and efficiency CCMB.

6. Recommendations

It is therefore recommended that environmental policy designers should develop strategies for behavioural changes towards climate change mitigation that are specific to the background experiential characteristics of tourist hotel managers.The findings suggest that public education would benefit from strategies that focus on simulating experiencing disasters and emotions.Overall, effective CCMB interventions should be sensitive to different experiential factors in order for them to effectively influence climate change responses toward environmental stewardship and sustainability. Future studies should incorporate other variables with alternate research methodology, extended to other tourism sectors and areas countrywide to minimize generalizability concerns related to the current findings. More work could be done with culturally diverse samples to show which findings are generalizable across cultures and how environmental experiential factors can affect climate change mitigations behaviors across managers of tourist hotels in the world.

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