

ORIGINAL RESEARCH ARTICLE

Environmental Worry Index-11: development, validity, and reliability

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ABSTRACT

BACKGROUND AND OBJECTIVES: Environmental worry involve primarily the thoughts of some hazardous immediate and long-run side effects of degradation that happened to our ecological system. Despite the side effects of this phenomenon, psychometrics measuring environmental worry from the African context are insufficient. Therefore, the Environmental Worry Index (EWI-11) was developed to assess proximal and personal experiences of worry about climate change and environmental degradation.

METHODS: This study used a qualitative method among environmental professionals and students (between the ages of 18 to 65) in a university to generate the themes and the pool of items that were used to determine the Environmental Worry Index (EWI-11). Thereafter, 925 participants were purposively selected and assessed from Ibadan city through a cross-sectional survey to ascertain the validity and reliability of this new scale. The participants were selected in Ibadan city, Nigeria. The software of the Statistical Package for Social Sciences (Version 26.0) was used for all analyses.

FINDINGS: Using exploratory factor analysis, the construct validity and Varimax rotation showed that the scale has two components (KMO = 0.892, df=91, p.00), thus showing a strong validity. The reliability dimensions and subscales have meritorious reliability (Proximal, $\alpha = .894$, and Personal experience of worry, $\alpha = .671$). The overall Cronbach's Alpha was 0.894.

CONCLUSION: The EWI-11 is adequate for measuring environmental worry and could be useful for experts in mental and environmental research and practice. EWI-11 is therefore recommended as a reliable and valid screening tool for environmental

DOI: [10.22034/IJHCUM.2023.01.03](https://doi.org/10.22034/IJHCUM.2023.01.03) worry and may be acceptable across Africa and other countries as well.



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INTRODUCTION

Global environmental devaluation and climate change have made it more difficult for people to maintain good mental health. Trauma, anxiety, fear, concern, and sadness are a few of these difficulties that may come along with the immediate or long-term repercussions of environmental deterioration (Intergovernmental Panel on Climate Change (IPCC), 2014; Stewart, 2021; WHO, 2022). Studies have shown that being exposed to inclement weather might result in anxiety and stress (Stewart, 2021). Additionally, the impacts of environmental devaluation on ecosystems and, consequently, human civilizations may create feelings of dread and fear about the potential climate-related uncertainties that lie ahead (Van der Linden, 2017). Concerns about environmental devaluation or climate change have been studied in several studies and related to the neglect of citizens, environmental scientists, and governments of all countries (Nisbet, 2017; Nisbet et al., 2017). Following changes brought about by the disrupted climate and environmental devaluation, people may react with feelings of grief, loss, and mourning; climate change may be the result of mourning (Cunsulo and Landman, 2017). Numerous other research has shown that being exposed to environmental dangers is bad for one's physical health as well as mental health problems like anxiety, depression, post-traumatic stress disorder (PTSD), and even suicidal thoughts. For instance, environmental deterioration has indirect effects on mental health that are linked to psychological stress, such as identity loss, relocation, interruptions in medical care, an increase in physical health problems, problems with physical health, an increase in community violence, food insecurity, malnutrition, and air pollution (Cianconi et al., 2020; Kelly et al., 2010). Environmental hazards worry and climate change anxiety is often used interchangeably but they are not the same environmental anxiety is a severe fear of doom that one has about climate or environmental degradation; even among those who have not personally encountered any direct effects of climate change, anxiety is more strongly correlated with perceptions about it (Clayton et al., 2017). On the other hand, environment worry (EW) is the anxiety brought on by personal experience or contemplation of climate change, particularly in those who have personally

encountered any direct repercussions. A study characterized environment anxiety as verbal-linguistic concerns about the climatic changes that take place and their potential impacts. Such worry is one of the numerous potential psychological reactions (such as dread, anxiety, despair, and trauma) to environmental deterioration, which affects people more intrinsically than it does other people, whereas worry is more specific than anxiety and anxiety is more explicit than worry (Stewart, 2020). Several researchers in the western world have developed assessment tools for the neurotic implications of degraded natural environments as a whole. For instance, Worthington et al. (2006) designed a scale to measure environmental distress that individuals witnessed proximal to open places where mining is done in Australia. In a similar way, Bowler and Schwarzer (1991), investigated the distressing experiences of locals living close to hazardous waste sites in New Mexico and Texas that could expose them to environmental worries, like the researchers in Australia, they found signs of environmental worry and noted associations between it and signs of stress, anxiety, and depression. These researchers also developed a tool to measure environmental worry (Searle and Gow, 2010). The Eco-Anxiety Scale was also designed by other researchers (Hogg et al., 2021). In contrast to the global focus on psychophysical and environmental health variables, the majority of African nations face unique social issues such as littering, open defecation, flooding, and species co-extinctions as a result of environmental change (Opayemi et al., 2020; Strona and Brand, 2018; UNICEF, 2022). Also, heat, excess rain, and drought (United Nations Climate Change, 2022) among others, none of these studies take to cognizance the peculiarity effects of climatic change in sub-Saharan Africa. There are some observations to be noted from these referred studies related to climate change distress scales of measurement. The first is that climate change anxiety and its assessments (otherwise refers to as the environment concern scale) have been of interest to a number of researchers but none considered the worries that accompanied environmental degradation. Second, it is important for the present study, compared to all the cited studies to design a measure of EW considering that the alternative assessment tools

are from the western world and may not take into cognizance the peculiarity of the African context of EW. Also, those past studies that have been used in the African settings, lack cultural and contextual peculiarity if a question like adequate ecological validity were asked in those studies. Additionally, because those items evaluate personal worry about EW across those domains of a psychological study of behavior, the items that focus on global or general societal worry about climate change may not relate to the current study, which is focused on personal experiences, psychological processes, behaviors, and cognitive/feelings that could be used to guide policy preferences, as reliably (Van der Linden, 2014). Given these considerations, researchers may gain from the development of a succinct, multi-item measure of individual concern with environmental degradation. The environmental worry may occur in an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; as a result, the environmental worry is closely related to the fear process. The concerns embedded in environmental destruction are typically described when examining the EW constructs as being chained in thoughts and images, negatively affect-laden, and largely perceived as uncontrollable (Fetzek and Mazo, 2014). In addition, worry could be described as negative vocal-linguistic that uses thoughts and minimal amounts of imagery that accompanies fears about the negative effects of environmental degradation in the future (Barlow, 2004; Holaway *et al.*, 2006 in Stewart, 2021). According to Szabo (2011), the emotional experience of worry is accompanied by stress-related symptoms such as tension, uneasiness, impatience, and difficulty controlling one's emotions. Normal worry differs from persistent, and acute worry in which an individual involves in worrying about a larger range of events, with more frequent occurrences over time and lasts longer episodes, and is felt as repetitive and uncontrollable one (Fetzek *et al.*, 2014; Stewart *et al.*, 2011). Furthermore, abnormal and adaptive worry involves attention to a threat in the environment and offers resources for doing so, whereas excessive and maladaptive worry may make it difficult to break free from repetitive thinking, which paradoxically impairs one's ability to think critically and solve problems in relation to the

threat (Godwin, Yiend and Hirsch, 2017). It has been asserted that EW could occur upon an increase in the severity of the weather hazards (Stewart, 2021). Alternately, EW may necessitate both coping and adaptive reactions, whose unpredictability may serve as a source of stress. People may also be concerned about how climate change will affect other people's ecosystems, lifestyles, livelihoods, health, and other factors (Clayton, 2020). Worry can help someone acclimatize to and adapt to an EW in moderation (Van der Linden, 2014). However, an excessive concern may prevent attempts at adapting and result in tension, distress, and diminished capacity for problem-solving (Holaway *et al.*, 2001). Such excessive worry may also exacerbate other emotional problems like anxiety or depression (Godwin *et al.*, 2017). According to the current study, determining the degree of worry that people may feel about environmental change was designed using a literature review to inform people's and experts' experiences while accounting for the frequency of worry that relates to the domain of a disrupted, changing, and the degraded environment from personal experience that resulted in worry rather than anxiety, fear, or depression. Based on the items, people are expected to self-report their worries about environmental damage. The study chose to concentrate on item content on potential near-term manifestations of environmental damage and climate change, such as severe weather outbreaks and their effects on the respondent's own life as well as the lives of others they care about, rather than on impacts like those on other nations, groups, and resource scarcity. This choice was made for two reasons. The first was that the authors wanted the measure to be simple and to concentrate on a single construct of individual environmental damage anxiety rather than anxiety over generic, societal, or global causes (Stewart, 2021). This was based on a deliberate choice, as learned from clinical experiences, because personal worry is an active emotional state that is frequently closely linked to behavioral changes intended to lessen a specific threat, as opposed to broad worry, which is not and can be expressed without any specific motivation or emotional content (Clayton, 2020; Van der Linden, 2014). The second justification for emphasizing individual concerns about the environment is consistent with research showing that people can

personally experience the proximal effects of environmental deterioration and that these experiences are reliable indicators of people's perceptions of the risk of the latter (Clayton, 2020; Diffenbaugh and Scherer, 2011; Stewart, 2021). As a result, only immediate and personal concerns about climate change and environmental degradation are included in the EWI items. As a result, the EWI serves as a scale for evaluating how worried people are about climate change. An inductive technique was utilized to design the scale's items; this method is particularly helpful when a construct's definition, operationally, or dimensions are unclear (Oguntayo *et al.*, 2020). In this situation, experts, professionals, and university lecturers were consulted to provide definitions of the construct, and such constructions are theorized and then derived; this could serve as the foundation for creating goods (Tay *et al.*, Stewart, 2017). The items and dimensions in a scale were precisely identified using a scientific technique called exploratory factor analysis (EFA), which is also the technique that is most frequently used to evaluate the validity of new scales. Factor analysis is a set of statistical structure analyzing techniques used to find correlations among observable variables in order to maximize data reduction of variables related to each dimension of the scale (i.e., factor) of the construct (Norris and Lecavalier, 2010). EFA examines the data and offers guidance regarding the number of factors loading. The number of factors and the related variables for each factor is carefully determined by researchers. EFA is essentially preferred over confirmatory factor analysis (CFA) for scale development since there is a chance that researchers' assumptions about the construct's dimensionality may be wrong. EFA is also recommended to determine the quality of the items (Kline, 2013; Stewart, 2021; Worthington *et al.*, 2006). The purpose of the current study is to develop and ascertain the validity and reliability of an indigenous African-based environmental worry assessment tool that focuses on the immediate and personal concerns about climate change and environmental degradation considering the paucity of literature on the psychometrics of this psychopathology, especially in Nigeria. The current study has been carried out in Ibadan, Oyo state, Nigeria in 2022.

MATERIALS AND METHODS

Qualitative design and data collection

This study utilized a mixed method (qualitative and qualitative methods). For the qualitative study where items were generated, those who participated in the Focus Group Discussions (FGD) that informed the themes generated were 30 from geography, agriculture, and social-related background in Ibadan, Oyo State, Nigeria, and one lecturer of geography and a lecturer of environmental psychology were granted a key informant interview in the same in the university of Ibadan, in Oyo state. The participants who consented to participate in the study were grouped thus; 10 participants were in FGD1, 9 participants were in FGD 2 and 9 participants were in FGD 3.

Items Generation and Selection

Firstly, the researcher reviewed the literature to examine the existing scales that measured EW and the factors influencing it. Secondly, the researcher conducted a qualitative study with a purposive sample of individuals with knowledge of climate change or environmental hazards. The participants were assessed using FGDs and in-depth interviews. This approach enhanced content validity (Nunnally, 1978) as the participants were considered experts in this area. The discussions in the FGD centered on both personal experiences, cognitive, and cultural worries about environmental degradation. The information gathered from the interviews was recorded, translated, and transcribed. From the thematic analysis of the FGD, three basis contents emerged: (i) emotional/cognitive factor, (ii) behavioral factor, and (iii) personal factor. Items were generated with these factors which resulted in 15 items. The themes generated were then pre-tested on the selected participants.

Face validation of the scale

The face validity was examined to see if the questionnaire included any pertinent questions for evaluating EW in the context of Africa, particularly Nigeria. The items were distributed to the chosen environmental Psychologist, geographer, and four psychology and geography students who are familiar with climate change in order to determine whether the measures accurately measure EW. They were

tasked with rating the questionnaire's items for relevancy, clarity, and conciseness. The respondents all agreed that the questions did in fact assess EW. All 15 things were kept after the initial evaluation.

Survey design, data collection procedure and settings

The study utilized a cross-sectional survey design. A face-to-face questionnaire administration was used to gather the data for the quantitative study between January and May 2022. In this study, proportionate stratified random sampling—which entails selecting random samples from stratified groupings, in proportion to the population—was used to better reflect the diversity of the city's population. In this method, the population size of the entire city was directly proportional to the sample size of each subgroup, which was categorized by the local administration. This indicates that the sampling fraction is the same for all local government samples. The next step was to select the respondents for this study phase using a methodical random sample. Therefore, 950 questionnaires were distributed to respondents across households in each of those five selected Local Government Areas (LGAs) in the main city of Ibadan, including the Ibadan North LGA, Ibadan North West LGA, Ibadan North East LGA, Ibadan South West LGA, and Ibadan Southeast LGA (Fig. 2) (Wahab and Popoola, 2018). Ibadan, with a population of 3,565,100 as of 2021 and more than 6 million residents in the metropolitan region, is the third-most populous city in Nigeria after Lagos and Kano (Statista, 2021). Ibadan, in south-western Nigeria, is a significant most big city between the coastal region and the regions in the country's interior. It is located 128 kilometers (80 km) inland from Lagos and 530 kilometers (330 mi) southwest of Abuja, the federal capital. (Statista, 2021). Ibadan was selected as the study region because the city government is determined to make it an environmentally friendly metropolis. As a result, this city appears to have a higher understanding of the effects of environmental dangers than other major cities in Nigeria. Furthermore, Ibadan city is home to nearly all of Nigeria's ethnic groups. As a result, this will aid in the national generalization of the study.

After removing the questionnaires not properly filled, a set of 925 qualified questionnaires was retained and used for further examination in the survey study. Participants ages ranged from 18 to

65years (60.0% males and 40.0% females; mean age =28.43, SD = 9.65). Individuals between 18-40years (youthful age) were 892(96.4%) while older individuals (between 41 to 65years) were 33(3.6%). For religion, Christians were 561(60.6%), while Muslims were 352(23.4%), and those practicing other religions were 12(1.3%). For tribe; Yorubas were 636(68.8%), Igbos were 138(14.9%), Hausa/Fulani were 66(7.1%) and other tribes were 85(9.2%). Educational status was; secondary school certificate 318(34.4%), diploma and equivalents 153(16.5%), Degree and equivalents 425(45.9%), while postgraduates were 29(3.1%). Marital status; single 409(44.2%), married 409(44.2%) and those separated/divorced were 107(11.6%). Lastly, Job-status; civil servants were 98 (10.6%), unemployed graduates were 96 (10.4), artisans/traders were 130 (14.1%), students were 444 (48.0%) and participants who were unemployed but not graduates were 157 (17.0%).

Analytical framework

In the current study, participants were asked to respond to the developed pool of questionnaire with this shown here; "I feel concerned when I think about the increase in air, water, land, and noise pollutions", "Concern on natural disasters and deterioration of earth's resources worry me", "Thoughts about the extinction of some animal species keep worrying me" etc. These seem to depict worry about ecological degradation. A choice of multiple responses using 4 Likert points response format was used thus; 0 = not at all, 1 = a few of the days, 2 = more than half the days, 3=almost every day. A descriptive statistic (mean, standard deviation, frequency, and percentage), EFA, Cronbach alpha reliability coefficient, and correlational analyses were utilized in this work to ascertain the validity and reliability of this index. The statistical package for social sciences (IBM SPSS 26.0) was used to examine the study's data.

RESULTS AND DISCUSSION

Descriptive statistics and factor analysis for variables entering the analysis

Fig. 3 and Table 1, 2, and 3 explain the study's findings. There are 925 respondents who are valid instances for this set of variables, which have to be reduced from a big set of Likert-scale variables (15 items of EW factors). The suitability of the data for factor analysis was assessed using Bartlett's test

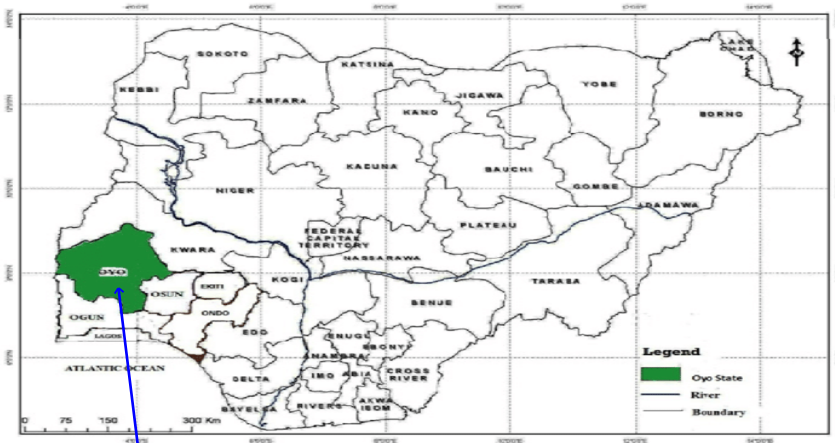


Fig. 1: Map of Nigeria showing Oyo state (Borokini et al., 2013)

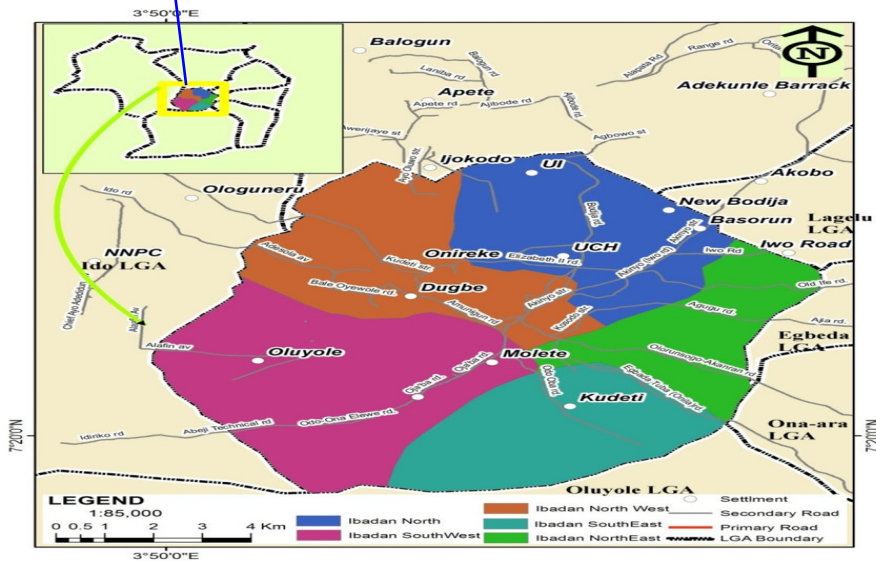


Fig. 2: Geographic location of the study region in Oyo State, Nigeria

of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy. The percentage of variance among variables that may have underlying causes or relevancy was also examined using the KMO test. The value of KMO increases as the data is more appropriate (near 1). When a matrix is put through the Bartlett sphericity test, it can be seen if it deviates significantly from an identity matrix. Therefore,

if Bartlett's test of sphericity yields a significant result, component analysis may be useful for the data ($p < 0.05$) (Shrestha, 2021). The study's findings revealed that the KMO value was 0.892, which was higher than the threshold limit of 0.8 (Shrestha, 2021), and Bartlett's test was significant at $p < 0.001$, approving that the factor analysis is useful and applicable. According to the performance of the

factor analysis, two components were recovered, and the explained variance was 59.059%. As a result of these procedures, this scale has two subcomponents as indicated in Table 1. Items 2, 5, 7, and 10 with factor loadings less than 0.5 were eliminated, leaving 11 items as valid. However, for the new scale, the original scale's items 1, 3, 4, 6, 8, 9, 11, 12, 13, and 14 were kept. Additionally, as each original variable's variation is explained by the factor solution to at least a certain extent, the communality value was sufficient for all items because it was greater than 0.50 for all of them (Oguntayo *et al.*, 2020).

The dimensionality of EWl

Fig. 3 showed the scree plot that revealed the two subscales; items 1, 8, 9, 12, 13, 14, and 15 were retained for "Proximal", while items 3, 4, 6, and 11 were retained for "Personal worry experience". Table 1 shows factors loadings and communalities for the

EFA of the EWl. A total of 11-item out of the 15 items were retained while the final 11 items with unique factor loadings range from .56 to .77. The scree plot of the 2 factors (Fig. 3) showed optimal solutions and relationships of the items loading that are relevant to the EW of the participants.

From Table 2, evidence of convergent and discriminant validity of the new scale of EWl was supported through bivariate analyses resulting in statistically significant positive correlations between the measure of psychological distress called Clinical Outcomes in Routine Evaluation-Outcome (CORE-10) (Barkham *et al.*, 2013) and EWl ($r = .073$, $n = 937$, $p = .001$) though in a very low way, there was no association between the measure of Infectious Diseases Preventive Health Behavior Scale (ID-PHBS-12) (Ayandele *et al.*, 2020) and EWl ($r = .040$, $n = 937$, $p = .269$) (Table 2). With respect to EWl scores, the CORE showed statistically significant correlations.

Table 1: Rotated Component Matrix with Principal Component Analysis as Extraction Method and Varimax Rotation with Kaiser Normalization and Reliability Coefficient for the new EWl

Items	Factors			Reliability		α
	Component 1	Component 2	Communalities	KMO	Bartlett test	
S/N	Items Retained					
1	I feel concerned when I think about the increase in air, water, land, and noise pollution	.797	.636			
3	I worry about flood disasters in my environment	.707	.509			
4	I feel concerned about the littering of the environment and open defecation	.681	.543			
6	Thoughts about traffic and congestion in my areas cause me to have worries	.765	.591			
8	Concern on natural disasters and deterioration of earth's resources worry me	.744	.707	0.892	$\chi^2=5.18$	0.771
9	Thoughts about the extinction of some animal species keep worrying me	.777	.614			
11	I tend to worry when I hear about food and water scarcity in my location	.563	.445			
12	I feel concerned about opposing low rainfall and excessive rainfall reports globally	.722	.593			
13	I feel concerned about earthquakes, tornados, and other environmental hazards	.771	.638			
14	Whenever I hear about the weakness of ozone layers my heart beats faster	.701	.596			
15	Bush burning and exposure to carbon dioxide give me concerns	.762	.626			

Environmental worry scale

Scree Plot

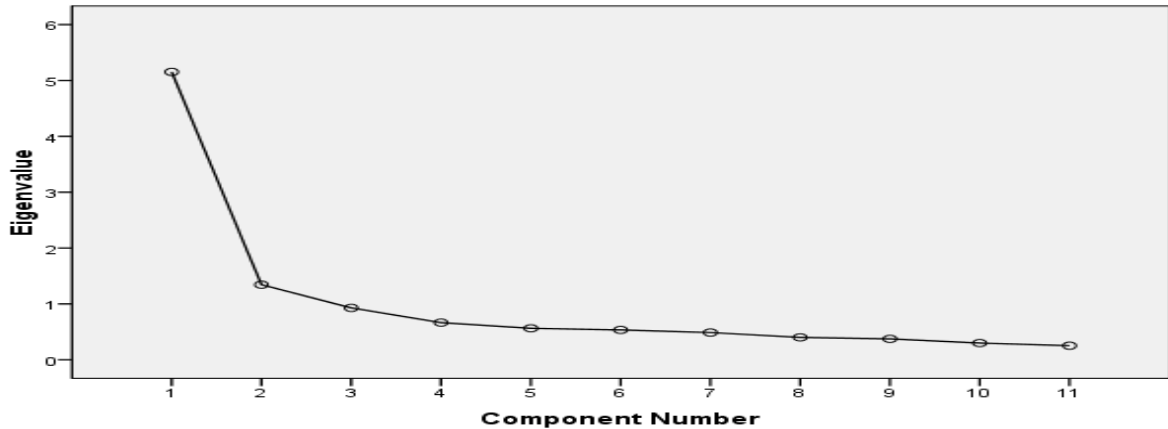


Fig. 3: Scree Plot for Environmental Worry Index (EWI)

Table 2: Results of Inter-correlation analysis among study scales

Scale	1	2	3	M	SD
Clinical outcomes in routine evaluation	-			14.05	5.70
Infectious diseases preventive health behavior scale	.356**	-		48.24	14.67
Environmental Worry Index	.073*	.040	-	44.92	11.47

** . Correlation is significant at the 0.01 level (1-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

Table 3: Item-Total Statistics

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
d1	29.1250	67.755	.611	.519	.873
d3	29.1238	73.573	.364	.259	.887
d4	29.1745	70.803	.506	.388	.879
d6	29.0165	73.561	.376	.304	.886
d8	29.6887	63.239	.780	.652	.861
d9	29.8998	63.847	.636	.515	.872
d11	29.1946	70.922	.515	.339	.879
d12	29.3667	66.778	.681	.529	.869
d13	29.7700	64.234	.693	.581	.867
d14	29.7252	64.414	.696	.530	.867
d15	29.6061	63.261	.690	.526	.868

Correlation research revealed an association between rising environmental worry and rising CORE scores (psychological distress) (Table 2). These findings revealed that environmental worry was more closely correlated with the emotional state of stress. A conclusion that supported the convergent validity of the EWI was the moderate degree of connection

between psychological distress measures (CORE) and EW. These findings support the hypothesis that more severe psychological suffering may ensue from environmental deterioration and global climate system disruption (Lin et al., 2018). People with past fears of environmental depletion may thus show increasing psychological distress when thinking of

environmental hazards. This could especially be the case if people have memories or recollections of severe environmental deterioration and have noted this trend over time such may exhibit greater severity in the measure of mental health in the long run. Also, the mean score according to this study is 44.10, SD=11.47 (Table 2).

The EWI reliability and its subcomponents were assessed using Cronbach's alpha test, the results showed the range of 0.861-0.886, which was greater than the minimum accepted value of 0.6 (Shrestha 2021), with an overall Cronbach alpha coefficient of .849 (Table 1 and 3). This examines how well these sets of items are related as a factor. For subscale; Proximal has a Cronbach's alpha value of 0.894, and personal worry experience has a Cronbach's alpha value of 0.671.

Comparing the Eco-Anxiety Scale to the results of this study, it can be shown that while the Eco-Anxiety Scale examines a more comprehensive evaluation of environmental anxiety (Hogg et al, 2021) the EWI assesses comprehensive environmental degradation worry. Recent empirical research by Clayton and Karazsia (2020) has given the first exception to this limiting focus on affective symptoms, providing support for the multidimensionality of climate change worry. The present study's findings on the cognitive-emotional and functional impairments of environmental change worry are novel and convincing, especially because it is compatible with the African setting rather than the Western context. In addition, it distinguishes between anxiety and worry in accordance with research on clinical anxiety disorders (APA, 2013). Similar to the authors of eco-anxiety, we adopted a mixed-methods approach to build a comprehensive measure of worry. However, we utilized EFA and discriminant validity in the validation of this new scale, whereas Hogg et al. (2020) utilized both EFA and CFA. EFA is fundamentally recommended over CFA for this scale construction because of the possibility that researchers' assumptions regarding the dimensionality of the new scale construct may be incorrect (Kline, 2013; Worthington et al., 2006). However, future research may use analysis to corroborate the validity and dimensionality established in the present study. This study's focus is unique compared to the other studies interests

in global world environmental threats, because it focuses on African regions have distinct concerns combined with climate change worry, such as littering, open defecation, flooding, heat, excess rainfall, and drought (Opayemi et al., 2020: UNICEF, 2022; United Nation Climate Change, 2020). Therefore, unlike other comparable historical metrics, the EWI possesses cultural and contextual characteristics of the African context. In addition, unlike other comparable scales, the current study focuses on personal experiences, psychological processes, actions, and cognitive/emotional states that could be utilized to drive policy preferences (Van der Linden, 2014). Therefore, the development of a concise, multi-item measure of individual worry with environmental deterioration will benefit professionals and clinicians interested in mental health and environmental hazards. EWI describes and analyzes the concerns embedded in environmental destruction constructions that are derived from negatively affect-laden thoughts and perceptions that are widely regarded to be uncontrollable (Fetzek et al., 2014).

CONCLUSION

The Environmental Worry Index (EWI-11), an eleven-item self-report measure created to gauge how much worry people feel about environmental risks, is developed, described, and its psychometric development is established by the authors in this article. This article starts out by talking about concern and how it is fundamentally different from the related concepts of anxiety and dread. The construct of environmental degradation worries and the methods utilized to create the EWI is then described by the authors. The author goes into detail about the EWI's psychometric development in the single research that follows. The study evaluates the internal reliability of the factor analysis of the items and offers the findings. Through its pattern of correlations with a number of well-established clinical and weather-related measures, this study also looks at the invariance of the latent structure of the measure with respect to results about the convergent and divergent validity of the EWI. This research work provides an insight into the distinguishing environmental worry measure between Africans and the western world as well as ascertains the development, validity,

and reliability of a new scale of environmental worry (EWI). It was designed to clinically assess the environmental worry among the African population and the global world over time. Consequent analysis of the result shows that out of the developed 15 items of (EWI), 11 items were proven reliable and valid. The study suggests that the new scale can be used among other populations, tribes, races, and nations to ascertain its generalizability. Therefore, future studies should take into consideration using this new scale appropriately and especially in other regions to harmonize external validity. The structure of the single factor indicating the distress that worry could produce was constant for both the sample's male and female participants and the items of the new environmental worry scale showed good internal consistency. When this scale is used, it is expected to be for clinical practice of assessment and for academic inquiry for getting a better understanding of environmental worry or distress, which could help policy-makers, mental health stakeholders, and environmental professionals to design and improve effective means of managing the impacts of environmental hazard on humans. From a global point of view, this study contributes and adds value to the existing literature on the assessment of environmental hazard measures as related to mental health policy applied in the behavioral, social, cultural, and global world. Finally, worry over environmental depletion was linked to distressing feelings. The EWI and the Infectious Diseases Preventive Health Behavior Scale were unrelated (ID-PHBS). Readers should keep in mind that since CFA was not used in this study, it is crucial that CFA be performed on a different sample in order for future researchers to corroborate the scale's structure.

AUTHOR CONTRIBUTIONS

R. Oguntayo developed the idea of this study; designed, analyzed, and interpreted the data. While O. Oladele worked out the literature review and compiled the data and formatted the manuscript. O.A. Olaseni helped in the literature review. As for O.D. Ajibewa, P.O. Ajao, and S.F. Agberotimi contributed to the manuscript preparation and performed some of the remaining work like the formatting of the manuscript and placement of graphs.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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ABBREVIATIONS

<i>CFA</i>	Confirmatory factor analysis
<i>CORE</i>	Clinical Outcomes in Routine Evaluation
<i>EFA</i>	Exploratory factor analysis
<i>EW</i>	Environment worry
<i>EWI</i>	Environmental Worry Index
<i>FGD</i>	Focus Group Discussion

<i>ID-PHBS</i>	Infectious Diseases Preventive Health Behavior Scale
<i>Km</i>	Kilometers
<i>KMO</i>	Kaiser-Meyer-Olkin
<i>LGAs</i>	Local Government Areas
<i>PTSD</i>	Post-traumatic stress disorder

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