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Assessment of the Psychological Dimension to Open Defecation in Ogun State

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The possibility of faecal exposure increasing risk for COVID-19 infection makes imperative the need to interrogate current sanitation practices, as emerging studies indicate the possibility that the oral-faecal pathway could serve as an alternative to the respiratory and contact transmissions. This would help provide an analytical premise for planned improvement and greater precaution in ensuring human waste is safely contained, emptied, transported, and disposed or treated. This study adopts the RANT model (Risk, Attitude, Norm, and Toilet Management factors) in order to expatiate on the psychological determinants of open defecation by households who currently have toilets and either share them or use them separately. This is with a view to proffering suggestions on the sustainable measures for faecal waste management within Ogun state, Nigeria. Using a four-level multi-stage approach, questionnaires were administered to a total of 330 households within Ogun State, Nigeria. In the logistic modelling of the psychological factors explaining why households still defecate in the open, an indicator of the risk factor was more significant in the tendency of households, where toilets are shared, to still defecate in the open. Moreover, an indicator of the norm factor would explain why households who do not share toilets still defecate in the open. The study recommends the need to mainstream, and implement effectively, initiatives such as planning and landscaping of open spaces, bus terminals with adequate toilets, installations of signpost warning against open defecation, comprehensive water schemes in cities' master plans of Ogun state, as a sustainable means of discouraging open defecation, and reducing the risk factors for COVID-19 infection and exposure to other infectious diseases.

KEYWORDS: Faecal, Management, Open-defecation, Sanitation, Sustainable, Waste
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INTRODUCTION

Currently, the risk of transmission of COVID-19 from the faeces of an infected person has not been conclusively established in literature and by the global authority on public health. However, emerging studies indicate the possibility that the oral-faecal pathway could serve as an alternative to the respiratory and contact transmissions, when it comes to COVID-19 infection (Ong et al., 2020; Wu et al., 2020; Zang et al., 2020). Earlier studies on other variants of the SARS coronavirus have found that such surrogates survived in faecal waste for a long period under different conditions (Casanova et al., 2009). Already, the consequences of the over 2 billion people in the world exposed to the risks of poorly managed faecal waste is dire enough (AU & ADB, 2015). Poor sanitation contributes to about 700,000 child casualty cases from diarrhoea and 1.7 billion cases on yearly basis (Thompson, 2015). Chronic diarrhoea can hinder child development by impeding the absorption of essential nutrients and reducing the effectiveness of life-saving vaccines. As reported in Olapeju and RafeeMajid (2019), diarrheal diseases related deaths in Nigeria reached 130,610 and 6.85% of total deaths and an estimate of

about 60,000 children under the age of five in Nigeria die from diarrheal diseases essentially caused by the country's poor levels of access to equitable sanitation. In Nigeria, where over 46 million people defecate in the open, the economic and social consequences are as weighty as the health implications. A World Bank study had put the economic losses of Nigeria to sanitation as over 3 billion dollars (World Bank, 2012). The study concluded that persons practicing open defecation expend almost 2.5 days a year finding a private location to defecate, leading to substantial economic losses and production of unhealthy flies and pathogens (Olapeju & RafeeMajid, 2019a). This cost is mostly accounted for by the value of time spent in the course of looking out for spaces to defecate; cost of treatment in the event of epidemic outbreak; cost of funeral of those who die as a result of sanitation related disease; and cost of cognitive development of children, as early childhood diarrhoea causes under nutrition and stunted mental growth. Persons, especially the female gender, in the quest to finding a spot to defecate, risk exposure to rape and sexual harassment, and kidnapping (Aung, 2017). Currently, only 27 local governments, out of the 774 Local Governments in Nigeria, have been declared open defecation free by the UNICEF (Durojaiye, 2020). A report of the Nigerian country home of UNICEF had put the number of open defecation free communities in Ogun state to be 257, out of the triggered communities of about 679. This implies households in about 62.2% of the communities across the 20 Local Government Areas of Ogun State still practice open defecation (Federal Republic of Nigeria, 2019). Faecal waste challenges are enormous especially in Ogun State, including parts of the State's capital, where due to the rocky nature of landforms, toilets are difficult to construct and access to water is also strained. Most households, who can be classified as poor, in the absence of means to bore wells and maintain toilets, recourse to open defecation in bushes, on rocks, and in incidental open spaces. Further, Olapeju and RafeeMajid (2019b) had shown that there are sizeable numbers of households who have the luxury of toilets, both improved and unimproved, who still practice open defecation within the State. This makes open- defecation a chronic scourge that should be carefully studied as a planned behavioural phenomenon. This study slightly tweaks the Risk, Attitude, Norm, Ability, Self-regulation (RANAS), a planned behavioural model adopted by Graf et al. (2008), Inauen et al. (2010) and Alemu et al. (2018) to RANT (Risk, Attitude, Norm, and Toilet Management factors) in order to expatiate on the psychological determinants of open defecation by households who currently have toilets and either share them or use them separately, with a view to proffering suggestions on the sustainable measures for faecal waste management within Ogun state, Nigeria. The possibility of faecal exposure increasing risk for COVID-19 makes imperative the need to interrogate current sanitation practices, towards providing an analytical premise for planned improvement and greater precaution in ensuring human waste is safely contained, emptied, transported, and disposed or treated in line with the WHO's Guidelines on Sanitation and Health.

METHODOLOGY

The study adopted the multistage approach, in a four level manner. This is inclusive of all political divisions in the study area. Foremost, as shown in Figure 1, Ogun State is shown as one of the 36 States in Nigeria. Ogun State was classified on the basis of its three main senatorial districts, which are Ogun Central Senatorial District, Ogun East Senatorial District, and Ogun West Senatorial District, as shown in Figure 2. These geographical groupings represent the three major regional divisions within the State. Further, Ogun East Senatorial District consists of nine Local Governments Areas, which are: Ogun Waterside, Ijebu East, Odogbolu, Ijebu North,

Ikenne, Ijebu North-East, Ijebu-Ode, Sagamu, and Remo North. Egbado North, Ado-Odo/Ota, Egbado South, Ipokia, and Imeko-Afon are the five Local Governments Areas in Ogun West Senatorial District. Moreover, Ogun Central Senatorial District encapsulates six Local Governments Areas, which are: Odeda, Obafemi/ Owode, Abeokuta South, Abeokuta North, Ewekoro, and Ifo.

In the second stage, the random selection of Sagamu, Egbado South, and Abeokuta South Local Governments as the sampling Local Governments Areas in Ogun East Senatorial District, Ogun West Senatorial District, and Ogun Central Senatorial District, respectively was done. The third stage involves the random selection of a representative ward, based on the wards and polling unit delineations of Independent National Electoral Commission (INEC), from each of the sampling Local Governments Areas. As shown in Table 1, Sagamu Local Government, consists of 15 political wards namely: Oko/Epe/Itula I; Sabo I, Oko/Epe/Itula II; Sabo II; Ayegbami/Ijokun; Isokun/Oyebajo; Ijagba; Ode-Lemo; Latawa; Ogijo/ Likosi; Simawa/Iwelepe; Surulere; Isote; Ibido/Ituwa/Alara, and Agbowa. Ogijo/Likosi ward was randomly selected out of these as the sampling ward. Out of the 10 political wards in Egbado South, namely Ilobi/Erinja, Ilaro I; Iwoye; Ilaro II; Idogo; Ilaro III; Owode I; OkeOdan; Owode II; and Ajilete, Ilaro I was randomly selected as the sampling ward. Further, Sodeke/Sale-Ijeun II was randomly selected as the sampling ward in Abeokuta South Local Government, which encapsulates 15 political wards, namely, Ake I; Keesi/Emere; Ijemo; Ake II; Ake III; Itoko; Erunbe/OkeIjeun; Ijaye/Idi-Aba; Sodeke/Sale-Ijeun I; Ago-Egun/Ijesa; Sodeke/Sale-Ijeun II; Imo/Isabo; Igbore/Ago Oba; Ibara I; and Ibara II.

Table 1: The Political Wards in the Sampling Local Government Areas.

	The 15 Political Wards in Sagamu	The 10 Political wards in Yewa South	The 15 Political Wards in Abeokuta South
1	Oko/Epe/Itula I	Ilaro I	Ake I
2	Oko/Epe/Itula II	Ilaro II	Ake II
3	Ayegbami/Ijokun	Ilaro III	Ake III
4	Sabo I	Iwoye	Keesi/Emere
5	Sabo II	Idogo	Ijemo
6	Isokun / Oyebajo	Oke Odan	Itoko
7	Ijagba	Owode I	Ijaye/Idi-Aba
8	Latawa	Owode II	Erunbe/OkeIjeun
9	Ode -Lemo	Ilobi/Erinja	Ago-Egun/Ijesa
10	Ogijo/ Likosi	Ajilete	Sodeke/Sale-IjeunI
11	Surulere		Sodeke/Sale-Ijeun II
12	Isote		Imo/Isabo
13	Simawa / Iwelepe		Igbore/Ago Oba
14	Agbowa		Ibara I
15	Ibido/Ituwa/Alara		Ibara II

The fourth stage involves the random selection of polling units in each sampling ward, and the random selection of buildings occupying targeted households and locating within 1 kilometre radius from the polling units. The polling units are nationally recognized landmarks for further categorising spatial entities into smaller homogenous units. All the polling units in each of the sampling wards were identified. Out of the available 19 polling units, in Ogijo/Likosi ward, 10 namely: St Paul's school Igbode; U.A.M.C School Iraye; St Micheal RCM Fakale; LG school Erefun; St Francis school Igbosoro; St John school Ogijo I; LG school Igbaga; Wesley school Sotunbo; A.U.D school Imushin-Ogijo; and CAC school Ogijo I, were randomly selected. In the available 17 polling units in in Ilaro 1, 10 namely: State hospital; Near Idowu's house Otegbeye street I; Opp Soyinka's house I; U.A.M.C school Pahayi; Oke-Ola area(Eleja); Poly gate; OritaKajola; Egbo Alaparun; Library/rural health care center; and Ita-Iyalode, were randomly selected. In Sodeke/Sale-Ijeun II, out of available 25 polling units, 10 namely: Onijoko Mosque OkebodeII; Opposite Oke-Itoku Mosque II; Ile Ogboni OkeItoku; Near Town Planning I; Open space Ojulakijena I; St Joseph RCM. Oke-bode I; Primary school Idipape I; All saint school Kobiti; Open space Kemta Odutolu Mosque; and Opposite Bus Stop Bata Itoku, were randomly selected. Thus making the total number of polling units within the radius of which households were surveyed in the study area to be 30. Systematic random sampling approach on the basis of the 5th building interval was adopted in selecting 11 household administered questionnaires within 1 kilometer radius of each of the 10 randomly selected polling units in Ogijo/Likosi ward. 10 households administered questionnaires within 1 kilometer radius of each of the 10 randomly selected polling units in Ilaro I; and 12 households administered questionnaires within 1 kilometer radius of each of the 10 randomly selected polling units in Sodeke/Isale-Ijeun II. Systematic random approach adopted is to the extent of making the selection of households an entirely random process that disregards the arrangements and physical outlook of the buildings in a manner that can suggest the response patterns of households. The questionnaire distribution ratio 1.1: 1.0: 1.23 adopted dovetails with the population variance across the three senatorial districts in Ogun State estimated as 1,250,435(33%), 1,112,761(30%), and 1,387,944(37%) for Ogun East, Ogun West and Ogun Central, respectively, as sourced from NPC(2010). This implies that 110, 100, and 120 questionnaires were administered in Ogijo/Likosi ; Ilaro I, and Sodeke/Sale-Ijeun II, respectively, making a total of 330 households that were surveyed, which represents about 0.06% of the estimated 535,877 households in the study area. Households represent the unit of data collection, and the household heads were the respondents that gave information about their households. Missing data were adequately taken care of, as the face-to face questionnaire administration method adopted by the study through well trained survey assistants ensured the minimization of missing data. Missing cases only effectively existed in variables expecting responses from exclusive groups, for instance households that use a specific faecal waste management means. However, the exclude cases pair wise option adopted ensured that all observations to the extent that they have necessary information were included in the analyses. In the course of analysis, outliers not exceeding the 3-box lengths from the edge of the plot box were retained, while the values of the extreme cases were changed to less extreme values in a manner that does not distort the originality of the statistics. In the logistic regression of psychological factors of risk, attitudes, norms, and toilet space management (RANT) in households on the occurrence of open defecation, outliers with ZResid values above 2.0 were removed from the data as the initial output of the

procedures suggested a problematic goodness of fit. Multicollinearity is indicated by lowness of tolerance values (less than 0.1) (Pallant, 2007). Such predictor variables showing low levels of tolerance were dropped to eliminate problems with model's goodness of fit. However, after repetitive dropping of items for those with the highest tolerance levels, model's goodness of fit was achieved, with some items showing significance. The adoption of logistic regression is premised on the fact that the outcomes to be predicted by the relevant constructs (RANT) are categorical outcomes with just two categories (whether households in each cases of where toilets are shared by households or where they are not shared defecate in the open or not).

RESULTS AND DISCUSSION

Result and Discussion on Psychological Factors of RANT in Households that Share Toilets on the Occurrence of Open Defecation

Logistic regression of psychological factors of risk, attitudes, norms, and toilet space management (RANT) was carried out in both households who share toilets and households who do not share toilets. The need to carry out the logistic regression in the two dimensions of households who share toilets and households who do not share toilets is informed by the fact that psychological proclivity to open defecation can be a function of the state of toilet facilities, which are prone to being messed up and badly managed with increased intensity of utilization, borne out of households' sharing. With plural households' utilization is the likelihood for a lower sense of stake and ownership, which ultimately culminates in poor management that could lead to more households being inclined to abandoning the facilities for more 'congenial' open spaces. Further, the fact that households who do not share toilets still defecate in the open, as evident in the section on sanitation profile of households, inspired a curiosity that made the operation of the logistic regression in the two categories imperative.

Risk, Attitude, Norm, Ability, Self-regulation (RANAS) model adopted by Inauen et al. (2010), Graf et al. (2008), and Alemu et al. (2018) to expatiate on the psychological variables for predicting Water, Hygiene and Sanitation (WASH) behaviours was modified to RANT in order to achieve a conceptual fit with the peculiar pragmatic realities of the study area, with respect to open defecation. The RANT constructs captured relevant psychological indicators for predicting households' tendency for open defecation both in instances where toilets are shared and where they are unshared. For optimal performance of the logistic regression of psychological factors of RANT in households who share toilets on the occurrence of open defecation to perform well, multicolinearity test was carried out to show that the predictor variables are not strongly related to each other. Multicollinearity is indicated by lowness of tolerance values (less than 0.1) (Pallant, 2007). Such variables showing low levels of tolerance are dropped to eliminate problems with model's goodness of fit. The initial output of the logistic regression procedures suggests a problematic goodness of fit, even after cases with ZResidual values above 2.0 had been removed from the data. However, after repetitive dropping of items for those with the highest tolerance levels, model's goodness of fit was achieved, with some items showing significance. The items that were retained in the final analysis are TS3 (Dirtiness of Toilets as the reason households defecate in the open), TS6 (The absence of water), RS4 (The perpetual feeling of nausea each time toilets are used), and AS3 (We enjoy defecating in the open, even when we are aware clean toilets are available, whenever we are pressed, as there is fresh and odourless air to be enjoyed). The logistic regression of psychological factors of RANT in households who share toilets on the occurrence of open defecation

showed key statistics. The overall percentage of correctly classified cases is 90.4%. The Omnibus Tests of Model Coefficients, which suggests the goodness of performance of the model and equally known as the goodness of fit test, at a significance value of 0.00 (< 0.05) and chi-squared value of 64.948 with 16 degrees of freedom is significant. It indicates that the model is better than SPSS's original guess that all households who share toilets still defecate in the open. Further, the Hosmer and Lemeshow Test, at a chi-squared value of 11.83 with a significance level of 0.065 (> 0.05) also corroborates the validity of the model. Cox & Snell R Square and Nagelkerke R Square values of .307 and .655 respectively, which are the pseudo R square statistics, suggest that between 30.7 % and 65.5% percent of the variability is explained by the model's predictors. Moreover, the variables in the equation as shown in Table 5 indicate that TS3 (Dirtiness of Toilets as the reason households defecate in the open), RS4 (The perpetual feeling of nausea each time toilets are used) and RS4 (1) and RS4 (3) (Dummies of RS4) are significant. The dummies of RS4 are the categories of responses ranging from strongly disagree (RS4 (1)), disagree (RS4 (2)), undecided (RS4 (3)), to agree (RS4 (4)), with RS4 (1) being the reference group, as it has the lowest value. Other items in the RANT model did not significantly contribute to the model. The significant equation is:

$$\text{Log}(p/1\text{-}p) = -1.258 + 1.685 * \text{RS4}(1) + 3.9585 * \text{RS4}(3) \quad (1)$$

The positive values in RS4 (1) and RS4(3) implies that the higher the level of the responses from strongly disagree to undecided in the question of respondents' agreement with the feeling of nausea each time toilets are used as a reason they defecate in the open, the higher the propensity to defecate in the open. Sixth, as shown in column Exp. (B) of Table 2, the odd ratios of 5.392 and 52.335 for RS4 (1) and RS4 (3) suggests that the likelihood for households who share toilets to still defecate in the open is 52.335 higher for households who were undecided about the question of whether the feeling of nausea each time toilets are used would inform their decision to defecate in the open than households who strongly disagreed to the same poser. Seventh, as shown in the last two columns of the same table, one can be 95% confident that the actual value of 52.335 odd ratio for RS4 (3) in the population lies between 13.505 to 202.807. That all the ranges exclude the value of 1, which would have indicated equal opportunity for the responses Yes/No in the question of whether open defecation is still being practised by households who share toilets, the results can be said to be statistically significant

Table 2: Logistic Regression of the Psychological Factors of RANT in Households that Share Toilets on the Occurrence of Open Defecation

								95.0% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1a	TS3			19.823	4	.001			
	TS3(1)	-1.075	1.208	.792	1	.374	.341	.032	3.642
	TS3 (2)	-.507	1.362	.138	1	.710	.603	.042	8.689
	TS3 (3)	1.753	1.214	2.084	1	.149	5.773	.534	62.394
	TS3 (4)	33.244	3.252E3	.000	1	.992	2.740E14	.000	.
	TS6			3.974	4	.409			
	TS6 (1)	16.205	2.133E3	.000	1	.994	1.091E7	.000	.
	TS6 (2)	15.780	2.133E3	.000	1	.994	7.131E6	.000	.
	TS6 (3)	17.232	2.133E3	.000	1	.994	3.046E7	.000	.
	TS6 (4)	32.858	3.858E3	.000	1	.993	1.862E14	.000	.
	AS3			.042	4	1.000			
	AS3(1)	-16.247	2.133E3	.000	1	.994	.000	.000	.
	AS3 (2)	.189	5.256E3	.000	1	1.000	1.208	.000	.
	AS3 (3)	-16.375	2.133E3	.000	1	.994	.000	.000	.
	AS3 (4)	-17.036	8.978E3	.000	1	.998	.000	.000	.
	RS4			37.154	4	.000			
	RS4(1)	1.685	.712	5.607	1	.018	5.392	1.337	21.748
	RS4(2)	20.367	5.518E3	.000	1	.997	7.006E8	.000	.
	RS4(3)	3.958	.691	32.792	1	.000	52.335	13.505	202.807
	RS4(4)	18.749	5.465E3	.000	1	.997	1.389E8	.000	.
	Constant	-1.258	.623	4.081	1	.043	.284		

Result and Discussion on Psychological Factors of RANT In Households that Do Not Share Toilets on the Occurrence of Open Defecation

Using same RANT constructs, the relevant psychological indicators for predicting households'tendency for open defecation were logistically regressed on the occurrence of open defecation by households who do not share toilets. Also for optimal performance of the logistic regression of psychological factors of RANT in households who do not share toilets on the occurrence of open defecation to perform well, multicolinearity test was carried out to show that the predictor variables are not strongly related to each other. Multicollinearity is indicated by lowness of tolerance values (less than 0.1) (Pallant, 2007). Variables showing low levels of tolerance are dropped to eliminate problems with model's goodness of fit. The initial output of the logistic regression procedures suggest a problematic goodness of fit, even after cases with ZResidual values above 2.0 had been removed from the data. However, after repetitive dropping of items for those with the highest tolerance levels, model's goodness of fit was achieved, with some items showing significance. The items that were retained in the final analysis are TU6 (Toilets are not illuminated, especially at nights), NU1 (there are usually no public toilets around those occasional moments, especially when households are not at home), and NU4 (most people also defecate in the open places where households defecate). The logistic regression of psychological factors of RANT in households who do not share toilets on the occurrence of open defecation revealed useful statistical information. Foremost, the overall percentage of correctly classified cases is 59.0%. The Omnibus Tests of Model Coefficients, which suggests the goodness of

performance of the model and equally referred to as the goodness of fit test, at a significance value of 0.00 (< 0.05) and chi-squared value of 65.100 with 8 degrees of freedom is significant. It indicates that the model is better than SPSS's original guess that no household where toilets are not shared still defecate in the open. The Hosmer and Lemeshow Test, at a chi-squared value of 2.848 with a significance level of 0.415 (> 0.05) also corroborates the validity of the model. Moreover, Cox & Snell R Square and Nagelkerke R Square values of .656 and .885, respectively, which are the pseudo R square statistics, suggest that between 65.6 % and 88.5% percent of the variability is explained by the model's predictors. The variables in the equation as shown in Table 2 indicate that NU1 (there are usually no public toilets around those occasional moments, especially when households are not at home), and NU4 (most people also defecate in the open places where households defecate) are significant. Other items in the RANT did not significantly contribute to the model. The significant equation is: $\text{Log}(p/1-p) = -45.72 + 3.356 * \text{NU4}$ (2)

The positive values in NU4 implies that the more people normalise open defecation by feeling that other people also defecate in places where they openly defecate, the higher their propensity to defecate in the open. Sixth, as shown in column Exp. (B) of Table 6, the odd ratios of 28.682 for NU4 suggests that the likelihood for households who do not share toilets to defecate in the open is 28.682 higher for households who normalise open defecation by feeling that other people also defecate in places where they openly defecate. Seventh, as shown in the last two columns of Table 3, one can be 95% confident that the actual value of 28.682 odd ratio for NU4 in the population lies between 7.413 to 110.976. That all the ranges exclude the value of 1, which would have indicated equal opportunity for the responses Yes/No in the question of whether open defecation is still being practiced by households who do not share toilets, the results can be said to be statistically significant.

Table 3: Logistic Regression of the Psychological Factors of RANT in Households that do not Share Toilets on the Occurrence of Open Defecation

								95.0% C.I. for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp. (B)	Lower	Upper
Step 1a	TU6			.000	3	1.000			
	TU6(1)	21.203	1.212E4	.000	1	.999	1.615E9	.000	.
	TU6(2)	43.957	3.021E4	.000	1	.999	1.231E19	.000	.
	TU6(3)	24.559	2.956E4	.000	1	.999	4.633E10	.000	.
	NU1			34.441	3	.000			
	NU1(1)	44.329	3.236E4	.000	1	.999	1.785E19	.000	.
	NU1(2)	2.161	2.104E4	.000	1	1.000	8.683	.000	.
	NU1(3)	-1.433	2.104E4	.000	1	1.000	.239	.000	.
	NU4	3.356	.690	23.637	2	.000	28.682	7.413	110.976
	NU44(1)	1.433	2.403E4	.000	1	1.000	4.193	.000	.
	NU4(2)			23.637	1	.000			
	Constant	-45.762	2.168E4	.000	1	.998	.000		

The significant factors in both analyses are different from the findings of Alemu et al. (2018), which reflected the significance of different items of attitude and norms. This difference is due to the nuance in the study's question. While the study under consideration interrogated the psychological determinants of open defecation by households, Alemu et al. (2018) assessed the psychological factors for predicting latrine ownership and usage. While an indicator of the risk factor counted more significantly in the propensity of households where toilets are shared to still defecate in the open, an indicator of the norm factor would explain why households who do not share toilets still defecate in the open. Households where toilets are not shared are less likely to be pushed to defecating openly because of health risks and toilet management issues, as their toilets, which are less under pressure, are likely to be better maintained. There could be exceptions in instances when their toilet systems malfunction by reason of conduits blockage, latrines fullness, and water scarcity. However, the significance of NU4 (most people also defecate in the open places where households defecate) as an indicator of norm in households that do not share toilets would be realistic in significant hours of the day when members of households are not in their homes and are either in places of work, school, market place, etc.

CONCLUSION AND RECOMMENDATION

In the RANT constructs developed to assess the open defecation practice as a planned behaviour, the significant indicators (dirtiness of toilets as the reason households defecate in the open, the risk factor of the perpetual feeling of nausea each time toilets are used, and the normative factors that there are no public toilets around those occasional moments, especially when households are not at home, and the fact that most people also defecate in the open places where households defecate) indicate how ownership of toilets alone would not suffice in eradicating the open-defecation challenge. The people living in the study area, including those having toilets in their homes, like in most parts of Nigeria, sometimes, defecate in the open whenever they are pressed, and not at home, and the plausible reasons for such behaviour are lack of public sanitary facilities; lack of bus terminals, which can afford commuters the opportunity to, at specific hourly intervals, alight from their buses to ease off in designated toilets within the terminals; proximity of unkempt bushes to built-up areas; poor environmental illumination due to constant electricity shortages; and the messy condition of toilets, when available. These actually require planning measures beyond reuse incentives. Planning initiatives such as planning and landscaping of open spaces, provision of bus terminals with adequate toilets, in the event that household members are pressed while travelling, installations of signpost warning against open defecation, connecting all residential developments to comprehensive water schemes, and enlightenment campaigns against open defecation by the authority, would go a long way in discouraging open defecation, and reducing the risk factors for COVID-19 infection and exposure to other infectious diseases. Hence, these planning measures should be mainstreamed in cities' master plans of Ogun State and implemented effectively. At the point when the country's road map to open defecation eradication clearly espouses a tier inclusive approach in agenda implementation, it is imperative that the Local Government Authorities are empowered technically, fiscally, and in terms of man-power requisite to effectively play their constitutional role towards achieving effective faecal waste management.

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