Relationship Between Prison Physical Environment and Mental Health of Inmate. A Case of Marimanti G.K Prison in Tharaka Sub-County, Tharaka-Nithi County, Kenya

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ABSTRACT

The prison's physical environment can be defined based on the size of spaces within prisons, including cells and shared areas, the design of buildings, size of doors and windows e.t.c. Mental health related problems keep increasing in the society and prisons are not exceptional especially due to incarceration challenges like isolation and exposure to violence. Due to this phenomenon, the researcher carried out research on the relationship between prison physical environment and the mental health of inmates. The study employed one theory, Environmental Determinism theory by Friedrich Ratzel (1844-1904) which views the physical environment as deterministic in shaping human behavior. This study adopted a correlational research design. The study target population was 280 respondents and a sample of 80 respondents was randomly selected. Questionnaires and interview schedules were used as the research instruments. The reliability of the research instrument was enhanced through a pilot study at Chuka G.K Prison. Content and face validity was ensured in the instrument in this study through experts' analysis. The study used a correlational study analysis; deploying multivariate regression analysis to examine the relationship between prison physical environment and mental health of inmates at Marimanti G.K prison. This was aided by the Statistical packages for Social Sciences (SPSS) version 28. Several tests were done starting with the pre-test analysis using cronbanch's alpha. Demographic analysis was performed using Anova and T-test. Anova test revealed that there existed no significance differences in mental health perception by age and educational level according to inmates. However, among prison staff while age is not significant, education differences are significant. A regression analysis was carried which established that physical environment was a statistically significant predictor of mental health among inmates. Basing on this analysis, physical environment emerged a critical predictor of mental health scores in the case of both inmates and prison staff. Quantitative data was presented by use of graphs and tables while qualitative data was presented as themes. Consistent with the existing literature, the findings affirmed that improvement in physical conditions such as reducing overcrowding, enhancing sanitation, and ensuring adequate ventilation can lead to significant enhancement in mental wellness among prisoners.

Key words: Physical Environment (Ventilation, natural light, and cells), Deprivation, Relationship, Inmates, Mental Health, Regression

INTRODUCTION

The prison physical environment can be well understood based on the design of prison buildings, size of spaces within prisons, including cells and shared areas, size of doors and windows and to some extent the access to natural light. It can also be understood by the access of outdoor activities, access to privacy and the

number of inmates in each room. All these profoundly affect the mental health of inmates. The state of mental health implies that the individual has the ability to form and maintain affectionate relationships with others, to perform in the social roles usually played in their culture and to manage change, recognize, acknowledge and communicate positive actions and thoughts as well as to manage emotions such as sadness (Galderisi S, et al. 2015). An individual in a state of good mental health will have a strong sense of self and others; they are able and willing to form positive relationships and yet be comfortable in their own company. The individual at the core of functioning is surrounded by the social world which include family, kinship, employers, peers, colleagues, friends and in the distal context society and culture. The interaction between individual and society becomes critical in building health communities which in turn can promote mental health (Bhugra et al.2013).

According to Penal Reform International (2022), more than 60% of prisoners in Netherlands, 70% in Ireland, and 40% in Italy suffer from at least one mental health condition. Survey carried out in Europe by Broker and Monteiro (2022) on the national policy for probation and mental health established those various disparities in mental health across various European member states. The study established that 25 of the European Union member states had 74% of its prison staff receiving training on mental health issues while only 37% of probation staffs had adequate training to help prisoners overcome issues of mental health. The survey established that there were higher mortality rates in probation units which was exacerbated by constraints in prison physical environment. Terminal illnesses among the inmates and unchecked suicidal rates especially in Wales and England ranged between 83 and 113 per 10,000 inmates (Edgemon, T.G., & Warner, J.2018). Such findings point out that prison physical environment among prisoners is not only a risk factor to increasing mental health problem, but a risk factor for mortality among the inmates (Quandt et al. 2021). WHO report (2023) points out that the most common cause of death rate in European prison is suicide which agrees with Brooker and Monteiro (2022) findings. Further, the reports posit that 1 in 5 member states experience overcrowded prison, which further escalate mental health issues in addition to deficiencies in adequate human support, treatments and preventive services in prisons

In Kenya, similar trends have been noted in the recent past. Studies have found that 63.2% of Kenyan inmates suffer from mental disorders, with potential links to the physical prison environment. In relation to cycles of stress suggested by Nurse (2003), it's possible to conclude that Kenya prisoners suffer from stress subjected to them by officers due to stress among the officers. A study by United Nations Office on Drugs and Crime (UNODC), (2022) found that Kenyan prison officers are often affected by series of verbal threats and insults abuses directed towards them and their loved one by inmates, society, their seniors and lack of adequate psychosocial supports leading to stress and negligence of their duties. This implies that prison officers will subject same stress to inmates or do inadequate job in relation to inmates' welfare. This affects officer to inmate relationship, further increasing the stress levels among inmates (Nurse, 2003). Previous studies carried out shows that prison physical environment is a common source of mental health issues among prisoners. Emmanuel (2022) investigated the influence of prison physical on prisoners' adjustment across the Federal Republic of Nigeria. In these studies, the prison physical environment remains very general and lack clear definition of its micro constitutes. Such generalization contributes to low study replicability and hence more specific aspects of prison physical environment need to be studied. As such, this study will seek to address unexplored gaps in physical environment of the prison which concentrates on structural properties of prison environment reducing generalization of using prison environment which is a very wide scope.

Mental health care in the prison system in Kenya faces a number of challenges, including insufficient mental health services, overcrowding, lack of mental health personnel, stigma attached to mental illness, and lack of funds and resources (Penal Reform International 2022). Likely, this affects Marimanti G.K Prison and many other correctional facilities in Kenya. Hence, it is important to understand the relationship between prison physical environment and mental health of inmates at Marimanti G.K Prison for more interventions and policies that enhance mental health care in the prison.

Statement of the Problem

Despite the enormous global and national attention that has prevailed in addressing issues to do with mental health, there still lies a gap in addressing mental health needs in Kenyan prison inmates. It is important to note that studies carried on prisons in Kenya have mainly captured the factors associated with the prevalence of mental health disorders among inmates. Other studies have examined the effect of contraband smuggling on rehabilitation of inmates in Kenya (a case of Kamiti maximum prison) and on the factors associated with substance use among inmates. These studies found out that there is high prevalence of mental disorders among Kenyan inmates at 63.2% which relates to the prison physical environment. However, most of these studies focused on G.K maximum security incarceration centers such as Kamiti maximum prison and Shimo La Tewa in Mombasa. This means little has been done on the relationship between prison physical environment and mental health of inmates in the low and medium prisons in Kenya. This study therefore, sought to determine the relationship between prison physical environment and the mental health of inmates at low and medium incarceration centers, a case of Marimanti G.K Prison.

Objective of the Study

The study was guided by the following objective:

To examine the relationship between physical environment and the mental health of inmates at Marimanti G.K Prison in Tharaka Nithi County.

Research Hypothesis

H_{01}: There is no statistical significantly relationship between prison physical environment and mental health of inmates at Marimanti G.K Prison in Tharaka Nithi County.

RESEARCH METHODOLOGY

This study adopted a correlational research design. This is a quantitative design which involves establishment of relationship between an independent and dependent variable. In this case, the study sought to understand how mental health is affected by the selected prison physical environment. The study was carried at Marimanti G.K Prison which is located in Tharaka Sub-County, Tharaka Nithi County. The prison acts as low crime incarceration unit serving people in Tharaka South, Tharaka Central, Tharaka North and neighboring counties of Embu and Meru. It covers crime incarceration of not more than three years. As at now it incarcerates only male inmates. Marimanti G.K Prison was selected because of its proximity and also it is one of the low and medium prisons. This means the findings of Marimanti G.K Prison may be used to give an overview of the prisons of the same level in Kenya. The study targeted 280 respondents, with 80 randomly selected as the sample. Sample size was determined using the following formula;

$$n = \frac{NC^2}{C^2 + (N-1)\epsilon^2}$$

Where:

- **N** is the target population
- **C** is the coefficient of variation (**σ**)
- ε is the margin of error
- **n** is the sample size

Given:

$$N = \frac{280(0.21)^2}{0.21^2 + (280\text{-}1)\, 0.02^2}$$

n = 80

Data was collected using a questionnaire and face to face interview. The questionnaires were closed ended and likert-scale in nature to enable the respondent to respond from limited options. Piloting of the questionnaire was done at Chuka G.K Prison which is located at Kathwana. The area of piloting had similar characteristics as those experienced in Marimanti G.K Prison. Reliability of the instrument was enhanced using Cronbach' coefficient alpha method. According to Mugenda $ Mugenda (1999), a correlation coefficient of 0.7 and above is accepted for research purposes. Validity was ensured through covering all the objectives in the questionnaire and through expert judgement. The study used a correlational study analysis; deploying smultivariate regression analysis to examine the relationship between physical environment and mental health of inmates at Marimanti G.K prison. The multivariate regression was preferred in this study because it enables the researcher to describe the relationship between variables. This was aided by the Statistical packages for Social Sciences (SPSS) version 28.0 for windows. The multivariate regression analysis was employed to explain the extent of relationship between the independent variable against the dependent variable (mental health). In this study, physical environment was regressed against mental health and was governed by the following equation;

$$Y = \alpha + \beta_1 X_1 + \varepsilon$$

Where:

Y = The dependent variable that measures mental issues

α = Constant term indicating the level of performance in the absence of any independent variables

β_1, is the coefficient functions of the independent variables

X_1 = Represents the independent variable that measures physical environment

ε = Error term representing other factors other than the above independent variable which are not defined in the model.

Table1: Summary of variables and Statistical test

Objectives	**Independent variable**	**Dependent variable**	**Statistical test**
Relationship between physical environment and mental health of inmates.	Physical environment	Mental Health	Regression analysis Thematic analysis

RESULTS AND DISCUSSIONS

Anova Analysis

Basing on the age and educational level of inmates and prison officers the ANOVA results indicated that there are no significant differences in age and education among inmates, suggesting a homogenous distribution of these characteristics within this group. Educational level are not significant among inmates since their level of academic achievement is low bearing in mind most of them have reached primary level. However, among wardens, while age differences are not significant, educational differences are significant. This suggests that educational attainment varies widely among wardens, which could have implications for training, professional development, and policy making within the institution. Addressing these educational disparities may be crucial for ensuring equitable opportunities and support for all wardens.

Table 2: ANOVA analysis

Group	Factor	Subjects	Sum of Squares	Df	Mean Square	F	Sig.
Inmates	Age	Between Groups	1.950	3	0.650	0.951	0.421
		Within Groups	41.671	61	0.683		
		Total	43.621	64			
	Education	Between Groups	0.782	3	0.261	0.371	0.774
		Within Groups	42.839	61	0.702		
		Total	43.621	64			
Wardens	Age	Between Groups	4.759	3	1.586	3.219	0.120
		Within Groups	2.464	5	0.493		
		Total	7.222	8			
	Education	Between Groups	5.592	3	1.864	6.524	0.026
		Within Groups	1.714	6	0.286		
		Total	7.306	9			

T-test Analysis

The demographic analysis was still done using the marital status of inmates and gender and marital status of the prison officers which investigated differences in marital status among inmates, gender and marital status

among wardens using an independent t-test. From Table 3, there existed no significant differences in the inmate's mental health perception based on gender and marital status for both warden and inmates. Such findings suggest that the gender or marital status of an inmate plays no significant role in the inmate's mental well-being.

Table 3: Independent t-test Summary

Group	Factors	Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	Df	Sig. (2-tailed)
Inmate	Marital Status	0.004	0.949	-0.149	63	0.882
Wardens	Gender	1.428	0.266	-1.964	8	0.085
Wardens	Marital status	0.378	0.556	-1.060	8	0.320

Regression analysis

A multivariate regression analysis was carried out to model the relationship between the response variable (mental health) and the predictor variable (prison physical environment). It was established that the physical environment (β=0.418, p=0.002) is a statistically significant predictor of mental health among the inmates. This suggests that improvements in the physical environment are associated with an increase in the mental well-being of the prisoners and supports hypothesis H_{01}.

When the independent variable is kept constant, the resulting mental health score is 3.781, and hence, the model governing the relationship between mental health and the independent variable can be represented as;

$Y=3.781+0.418X_1+\varepsilon$

Where;

- Y is the mental health score
- X_1 represent the physical environment

Table 4: Multivariate regression

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.781	.598		6.318	.000
	Physical environment	.418	.174	.328	2.400	.020

Qualitative Analysis

Based on the provided interview data, several themes emerged surrounding the state of the physical environment. For the physical environment, issues of overcrowding, inadequate bedding, and cleanliness problems were dominant. This explains why the frequency of words like "congestion" is among the most dominant theme words in the word world. While there existed issues of ventilation were also notable from the word cloud, the key primary stressors were cleanliness and lack of bedding. For instance, one respondent

suggested that "mattresses available are not in good condition; most of them are worn out," while another inmate noted that "the beddings are not enough and not in good condition."

The physical environment emerged as a critical predictor of mental health scores in the case of both inmates and prison staff in the regression analysis. The findings show that improvements in the physical environment are firmly linked with better mental health outcomes. This is in line with the literature by Bosma et al. (2019), which pointed out that humane and supportive physical environments can reduce stressors and activate mental well-being. If this requires investment in better living conditions, then sufficient lighting and ventilation accompanied by general cleanliness would be enough to significantly improve mental health within the prison environment.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study suggests that the physical environment is an influencer of mental health among the inmates. Any positive change or improvement in physical environment leads to improvements in prisoners' mental wellness. The significant impact of the physical environment on the mental health is consistent with literature which suggests that the physical conditions of incarceration facilities, such as overcrowding, inadequate sanitation, and poor ventilation, significantly affect the mental well-being of inmates. These studies emphasize the importance of improving the physical environment to enhance mental health outcome of inmates, a conclusion that is strongly supported by the current study findings. The study underscores the critical role of the physical environment in influencing the mental health of inmates. Consistent with the existing literature, the findings affirm that improvements in physical conditions, such as reducing overcrowding, enhancing sanitation, and ensuring adequate ventilation, can lead to significant enhancements in mental wellness among prisoners.

It is significant to note that inmates' physical surroundings in prisons can play an essential role in their mental health. Thus, there exists the necessity for the government, prison administration, and all stake holders to discuss further the changes in their living conditions for the inmates in order to achieve better results in the sphere of their mental health. This involves a decrease in crowding, improving sanitation conditions, and installing suitable lighting and ventilation. Additionally, it is encouraged to have recreation and open spaces that are available to the inmates. These can foster a more humane and supportive environment to help the inmates feel better mentally.

REFERENCES

1. Brooker, C., & Monteiro, J. (2022). Prisons and Probation: Council of Europe White Paper on the Management of Persons with Mental Health Disorders. In Council of Penological Cooperation (3rd ed., Vol. 8). Strasbourg Council of Europe.
2. Edgemon, T. G., & Clay-Warner, J. (2018). Inmate Mental Health and the Pains of Imprisonment. Society and Mental Health, 9(1), 33–50. https://doi.org/10.1177/2156869318785424
3. Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of Mental Health. World Psychiatry, 14(2), 231
4. Mugenda, Q, M. and Mugenda, A.G. (2009) Research Methods: Quantitative and Qualitative Approaches. ACTS, Nairobi.
5. Nurse, J. (2003). Influence Of Environmental Factors on Mental Health Within Prisons: Focus Group Study. BMJ, 327(7413), 480–0. https://doi.org/10.1136/bmj.327.7413.480
6. Penal Reform International. (2022). Mental Health. https://www.penalreform.org/global-prison-trends-2022/mental-health/#:~:text=Rates%20of%20mental%20health%20conditions

7. Quandt, K. R., & Jones, A. (2021, May). Research Roundup: Incarceration can cause lasting damage to mental health. Www.prisonpolicy.org.

8. https://www.prisonpolicy.org/blog/2021/05/13/mentalhealthimpacts/#:~:text=Similarly%2C%20in%20a%202

9. United Nations Office on Drugs and Crime (UNODC). (2022). United Nations Office on Drugs and Crime. Prevention of Violent Extremism in Prisons in Kenya https://www.unodc.org/easternafrica/en/Stories/Prevention-of-Violent-Extremism-in-Prisons-in-Kenya—addressing-Stress-and-Trauma-faced-by-Prison-Officers.html

10. World Health Organization, (2023). One-third of People in Prison in Europe Suffer from Mental Health Disorders. World Health Organization. https://www.who.int/europe/news/item/15-02-2023-one-third-of-people-in-prison-in-europe-suffer-from-mental-health-disorders.