

# Effect Of Exposure To Visual Art Forms On Male Sexual Offenders' Attitudes Towards Crime

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*Abstract: Visual arts are overly caricatured as non-essentially flossy and unmerited luxury particularly when executed in a jail setting. However, research has suggested that the use of visual arts such as paintings and drawings can significantly bear upon criminal offenders' future lives. In this paper the author makes reference to this connotation in order to examine the place of visual arts in offender rehabilitation by investigating the effect of exposure to digital paintings on male sexual offenders' attitudes towards crime. The study targeting offenders of age 18-45 years was carried out in Nairobi West prison, a male offenders' facility based in Nairobi City County, Kenya. A mixed method research design involving both qualitative and quantitative approaches was adopted with the sample selection being done through stratified random sampling where 61 male offenders convicted for defilement and rape were selected. An attitude questionnaire was used to determine male sexual offenders' attitudes towards crime at pre-test and post-tests with a total of 57 respondents completing all phases of the study. A Paired T- Test was used to determine differences in attitudes towards crime before and after exposure to digital paintings illustrating consequences of sexual crimes. Significant differences were found between post-test1 and pre-test ( $t=-3.117$ ,  $p\text{-value}=0.003$ ) and between post-test2 and pre-test ( $t=-2.161$ ,  $p\text{-value}=0.035$ ). Findings showed better scores in offenders' general attitude, anticipation towards re-offending and their evaluation of crime as worthwhile. The findings imply that when appropriately incorporated into the rehabilitation programmes, creative interventions such as visual arts can result in improved attitudes leading to desistance from crime. The study therefore recommends the need to put more effort in the value of art-based interventions as a means rehabilitating sexual offenders.*

**Keywords:** Digital Painting; Visual Art; Sexual Offenders; Attitude; intervention; Exposure

## I. INTRODUCTION

Desistance from crime is one major reason for creating rehabilitation programmes in prison. However, there is minimal literature on offender rehabilitation interventions in Kenya especially those that are specific to sexual offenders. Additionally, art based offender rehabilitation programs have not been largely explored in Kenya. Sexual offending and its accompanying consequences undermine the fulfilment of the national goals encompassed in Vision 2030, the National Health Sector Strategic Plan II and global development goals embraced in Millennium Development Goals since it affects

the well-being and health of the victim. Although the Sexual Offences Act, 2006 prescribes stiff criminal penalties against sexual offences, this has not deterred perpetrators. As at 2015, Koinange (2015) reported that many incidences of sexual offences were still attributed to re-offending by past sexual offenders. This has resulted in overcrowding in Kenyan prisons which currently operate at 55% above their official limit (Kenya Prisons Service, 2015). A review of literature show that visual arts, drama and film have been used to explore issues on AIDS activism (Annie, 2019; Nabulime & McEwan, 2010), climate change (Hollo & Rimmer, 2014), rehabilitation of survivors of Female Genital Mutilation

(Okoth, 2014) and psychological distress among female refugees (Situma, 2018). Despite the lack of studies on sexual offender based art programs, research studies using visual arts have focused on active forms of participation such as directed, collaborative and creative participation, with less emphasis on passive forms like nominal participation. This paper was therefore based on a study that focused on nominal participation in arts through passive viewing as a way of getting the participants to gain exposure. In this way, the author paid attention to the audience's experience with a product of the creative skill. Although there are many forms of visual arts, this paper focused on digital paintings that illustrate the consequences of sexual crimes on the victim, the offender and the offender's family. This study presented an opportunity to examine nominal participation in arts among male sexual offender population. This was done by having the respondents passively view the digital paintings and base responses on what they saw in the paintings exposed at different frequencies.

## II. LITERATURE REVIEW

Research on adult sexual male offenders determined that most offenders commit their first offence after the age of 18 years (Lussier & Blokland, 2014). World Health Organization (2014) approximates that 10% of men and 20% of women suffered from sexual abuse at childhood. In the United States, approximations from National Crime Victimization Survey (NCVS) show 431,840 cases of sexual assault/ rape victimizations in 2015 (Truman & Morgan, 2015). World Health Organization (WHO) approximates 73 million boys and 150 million girls as having been abused sexually before attaining 15 years of age. In five African countries, a global school-based student health survey showed a lifetime exposure to sexual abuse of 13–15-year-olds as ranging between 9% and 33% (Brown et. al., 2009). In 2013 to 2014 one to two billion children were exposed to sexual offences worldwide (Hillis et al., 2016). The prevalence of defilement and sexual offending has been estimated to be between 7–36% among females and 5–10% among males by a number of studies (Callender & Dartnall, 2010; Sumner et al., 2015). The UN Sustainable Development Goals' agenda for global human development endeavours (2015–2030) acknowledged defilement as a major hindrance to children's health and the general society and seeks to banish all types of abuse (United Nations General Assembly, 2015).

### A. SEXUAL OFFENCE STATISTICS IN KENYA

Kenya is a signatory to the international human rights instruments and standards, for example, the Millennium Development Goals (MDGs) and the International Conference on Population and Development (ICPD) that have been incorporated in the Constitution. These instruments commit governments to set up measures to address sexual offending. The Sexual Offences Act 2006, National Reproductive Health Strategy and the National Policy on Gender and Development are guidelines that created to provide knowledge on address issues of sexual offences in Kenya. In the republic of Kenya,

these offences are defined by the Sexual Offences Act 2006, a legislation that defines a number of sexual offences such as rape, sexual assault, incest and defilement among others. An individual who has been convicted for a sexual offence is therefore a sexual offender.

In 2018, Nairobi County recorded the highest number in sexual offences with a with a 15% increase reported in 2013 to 2017 (Mutisya, 2018). Reports by UN-Habitat (2014) support these statistics in noting that one in every seven women in Nairobi experienced sexual abuse with three out of five involving rape, one quarter of sexual abuse cases resulting in an unwanted pregnancy and one in twelve women contracting the HIV virus. In analysing child sexual abuse in Korogocho slum, Nairobi, Njehu (2015) reported that defilement and rape were the most prominent sexual offences according to 74% of the respondents in the area of study. In support of police statistics, cases reported at the Gender Based Violence Recovery Centres (GBVRCs) of Departments of Mental Health in Kenyatta National Hospital (KNH), and Nairobi Women's Hospital (NWH) also showed defilement as the leading form of sexual crime against children (Mutavi, Mathai, Kumar, Nganga & Obondo, 2016).

Recent reports indicate that year 2020 has recorded substantial rise in sexual offence cases following the announcement of the first case of coronavirus in Kenya (Ondenyio, 2020). Nairobi, Mombasa and Uasin Gishu counties reported the highest number of sexual offences cases particularly defilement. A Global Initiative Against Transnational Organized Crime (GI-TOC) document on the impact of the pandemic on crime attributed the increased sexual crimes to people having too much time on their hands and children being out of school. The office of the DPP recorded 95 sexual offences between March 16 and 31, 2020. This translates to 41 per cent of the total 265 cases reported in that period. Siele (2020) similarly reported that sexual offences constituted 35.8% of the criminal matters reported during the same period, confirming the spike in cases on sexual offending. Nairobi and Kiambu counties remain the crime hotspots, with robbery and murder cases were the most reported after sexual offences. Chief Justice David Maraga's observed that rape and defilement constituted more than 35% of all reported cases in Kenya (Siele (2020). Crime statistics in Kenya as at April 2020 show that cases of sexual offences were highest at 41.1% in comparison to other crimes reported to the police.

The above statistics point lead to many conclusions. One, there are problems of public awareness and reporting of sexual offences in Kenya. Two, there is no proper documentation of incidences of sexual offences, including a public list of past offenders. Three, existing means of rehabilitation for sexual offenders may not be effective enough to avert re-offending.

### B. ART BASED INTERVENTIONS IN REHABILITATION OF OFFENDERS

Gardner, Hager & Hillman (2014) reviewed 48 American prison art based programs, with 19 and 29 addressed to juvenile adult inmates respectively. Reports of positive changes among participants were noted in nearly every case. Argue, Bennett and Gussak (2009) have suggested that

participation in artistic projects can serve a transformative function for prisoners, acting as a catalyst for positive psychological and attitudinal changes. This function assumes particular significance considering Fazel & Baillargeon's (2010) observation that rates of psychological conditions and associated problems amongst prisoners have repeatedly been found to exceed the respective rates reported for the general population.

Interdisciplinary investigations found in education, neurobiology and criminal justice journals demonstrate that psychological, social and individual skills are created by way of arts training and processes (Bembenutty, White & Dibenedetto, 2016; Baker, 2013). Consequently, prisons have depended on the advantages that art programmes provide in restoration of offenders (Oliver, 2017). Research on Arts in offender rehabilitation has elaborated on creative rehabilitation (Nugent & Loucks, 2011), therapy (Takal, Horrox, & Rubio-Garrido, 2017), decrease of re-offending (Ndombi, 2014), attitudes and behaviour (Brewster, 2014), management of anger (Breiner, Tuomisto, Bouyea, Gussak, & Aufderheide, 2012), conversation and reinforcing bonds (Turner, 2016) and gaining autonomy (Turner, 2016). Cheliotis and Jordanoska (2016) found increased effective communication, empathy, collaboration and improved social skills among participants following participation in arts-in-prisons schemes.

Brewster (2014) found that 75% of Arts in Corrections participants at the California Medical Facility and 80.6% of those at the Correctional Training Facility had less disciplinary infringements when contrasted and non-participants. An audit by Yoon, Slade and Fazel (2017) affirms the potency of art therapy in lowering depression in prison populaces. In another exploration on art therapy with prison detainees (Brewster, 2014) noted improvement in compliance with staff and rules, attitude, mood, and abilities to socialize. In an assessment of prison arts locus of control in Norway, Langelid, Maki, Raundrup and Svensson (2009) contemplated that arts add to prisoner self-improvement by upgrading their inspiration, social and fundamental abilities. In the United States, Jaafari (2018) has reported incidences in which healing for former offenders have been achieved in some prisons using theatre arts. He, however, laments that art programs are usually the first to be sacrificed when a prison is in need for more beds or security. Jaafari's claim could explain why there is minimal use of arts in rehabilitative strategies for convicts in the Kenyan prison framework.

### III. MATERIALS AND METHODOLOGY

The study was conducted in Nairobi County's Nairobi West Prison (NWP), a facility for male offenders, which was purposively sampled. Built in the 1950s during the colonial era, the prison is situated opposite Wilson Airport and neighbours AMREF Training Centre to the right. Consequently, the study in this area was deemed relevant in providing new insights in understanding male sexual offenders.

The study focused on convicts of rape and defilement aged 18-45 years. This age group has been identified as high-

risk offenders (Levenson & Shields, 2019). Rape and defilement convicts were selected based on police crime reports showing high numbers of defilement and rape cases reported in the years 2017 and 2018 as compared to other sexual offences. The study incorporated a mixed method research approach that enabled integration of both qualitative and quantitative research methods. Data collection was characterized by administration of the same attitude questionnaire at pre and post intervention. The questionnaire is based on an Attitude to Offending Behaviour instrument (ATOBI), Crime Pics II scale, a self-report instrument developed by criminology and psychology scholars, professors Frude, Honess, & Maguire (2008). Stratified random sampling was used to select 61 male offenders convicted for defilement and rape as respondents in the study. Respondents were randomly assigned to two experimental conditions involving exposure to digital paintings by viewing in exhibition and projection in Rapid Serial Visual presentation respectively. For one group, canvas prints of digital paintings were displayed in an exhibition hall in 15 sessions with each lasting between 30-45 minutes, while for the second group, digitized copies the paintings were projected at their actual size using shelf mode RSVP via a beam projector (Casio Data Projector-XJ-A150V) on a white background wall in an exhibition hall at the Nairobi West prison. The author conducted an observation on a temporary art exhibition 24 digital paintings covering consequences of sexual crimes on the offender, offender's family and the victim. Six digital paintings were purposively selected and excluded from repeated presentations but were shown in the final display during the rating phase, while eighteen paintings were presented repeatedly in three-day intervals for 5 weeks. A post-test questionnaire was then administered to enable to assess the overall effect of exposure to digital paintings on male sexual offenders' attitudes towards sexual crimes.

### IV. STUDY FINDINGS

The study targeted 61 participants, however four targeted participants were unable to fully participate and were therefore removed from the study resulting to a high response rate of 93.44% which according to Akinci & Saunders, (2015) provide greater credibility to the value of research findings. The calculated mean age of the respondents was 32.22. Majority (58.49%) of the respondents reported to have been married and another majority (50.00%) studied up to secondary school.

Crime Pics II scale on which the attitude questionnaire is based has four indices for measuring offenders' attitudes in relation general attitude to offending (G), anticipation of reoffending (A), victim hurt denial (V) and evaluation of crime as worthwhile (E). G scale looks at the general view about offending and a low score shows that the offender believes that offending is not an acceptable way of life. A scale indicates a person's expectation as to whether they are likely to offend again. A lower score implies that offending will be avoided in future. The V scale indicates the offender's level of acceptance of adverse effect on victims, where a low score indicates that the offender recognizes their actions impact on

victims. Scale E explores the offender’s cost benefit analysis of the worthwhileness of crime, with a low score indicating the offenders’ perception of the cost of crime as being greater than its rewards. The scale also has a measures offenders’ perception towards life problems on P scale.

Pretest responses in the attitudes questionnaire were entered into the Crime pics II software which generated scaled weighted scores of attitude measurement on an interval scale for the dimensions of attitude. A summary is provided in Figure1

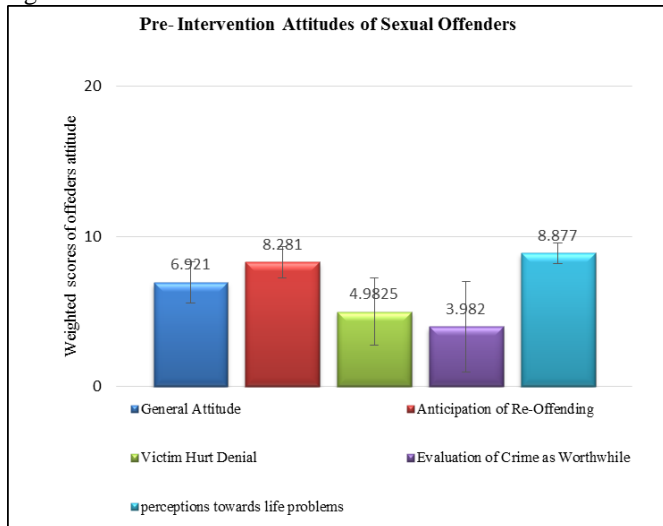


Figure 1: Pre-Intervention Attitudes of Male Sexual Offenders

Two post-test assessments, one immediately after the intervention (post-test1) and the second two weeks after the intervention (post-test 2) were meant to determine the sustainability of the treatment’s effect over time. Figure 2 shows a summary of the descriptive statistics of the of the respondents attitudes after intervention for both post-test1 and post-test2 assessments.

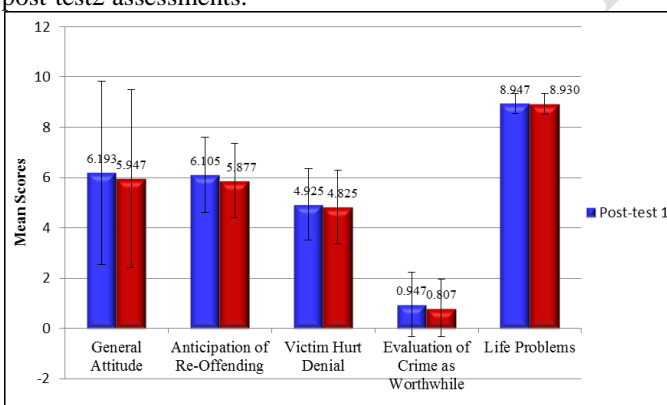


Figure 2: Post Test Measures of Male Sexual Offenders' Attitudes towards Crimes

Responses in the attitude questionnaire were entered in Crime Pics II software to generate the attitude measures from the indicators. The results show that the post-test assessment averages are had minimal difference, with post-test2 averages slightly lower than the post-test1 averages, suggesting sustainability of attitude improvement (effects). The findings also indicate a possible slight improvement in attitudes after the sexual offenders stay for some time to reminisce over the images on consequences sexual crimes. In order to confirm the improvement in attitude over time after treatment, Statistical

tests on the differences in attitudes between post-test1 and post-test2 were carried out.

#### A. EFFECT OF EXPOSURE TO DIGITAL PAINTINGS ON MALE SEXUAL OFFENDERS’ ATTITUDES TOWARDS CRIME

To confirm the effect of the exposure to digital paintings on male of sexual offenders’ attitudes, a test was carried out to assess the paired differences in attitudes of the sexual offenders before and after treatment. The tests covered the following domains: general attitude towards offending, anticipation for re- offending, victim hurt denial and evaluation of crime as worthwhile. Considering that the quasi-experimental design used in the study did not consider control group and treatment group but a paired sample of respondents who were all given treatment and assessed before and after treatment, a paired sample t-test was used. The paired difference in attitude was determined for each respondent and the significance that the mean of the differences is not equal to zero was tested. The test is based on the assumption that the variable follows a normal distribution thus an assessment of normality was carried out on the variable before the tests.

##### a. POST EXPOSURE EFFECTS ON GENERAL ATTITUDES TOWARDS OFFENDING

The test on the effect exposure to digital paintings on male sexual offenders’ attitudes was carried out on participants’ general attitude towards offending as generated from the attitudes indicators using Crime Pics II software. Figure 3 is a histogram displaying the distributions of the difference between the pre-test and post-test 1 general attitudes towards sexual offending.

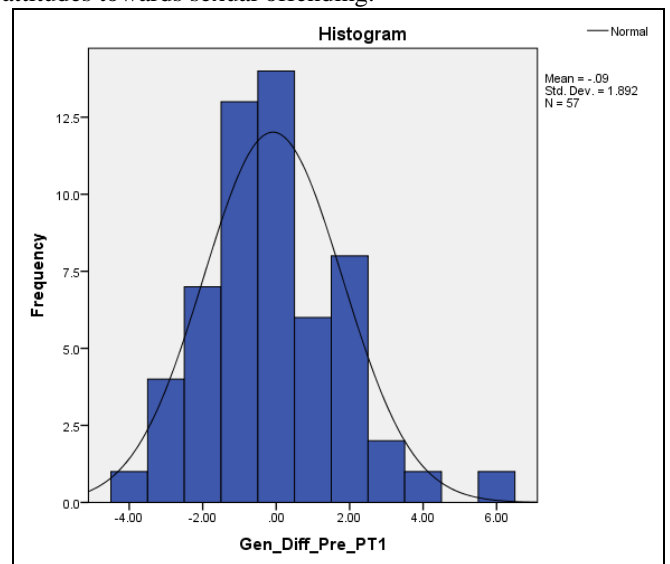


Figure 3: Paired Differences in General Attitude toward Offending between Pre-Test and Post-Test

The histogram shows a virtually skewed distribution to the left to imply possible deviation from normality. Further to the histogram for visual depiction of the distribution of the difference variables, Table 1.1 shows a normality test based on the Shapiro-Wilk statistics.

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Post-test 1 – Pre-test	0.166	57	0.000	0.955	57	0.034
Post-test 2 – Pre-test	0.137	57	0.010	0.956	57	0.041
Post-test 2 – Post-test 1	0.178	57	0.000	0.917	57	0.001

Table 1: Pre and Post Intervention Normality test on difference in General Attitude to Offending

The table shows the normality test of the paired differences between all the three variables; between pre-test and both post-test1 and post-test 2 and between the two post-tests. The Shapiro-Wilk statistics all have p-values less than 0.05 implying that they all deviated from normality and do not follow a normal distribution. Due to the violation of the normality assumption of the paired sample t-test, a bootstrap was carried out for the test. Table 2 shows the t-tests of paired differences between the assessments of general.

	Paired differences					Bootstrapped Bias corrected test			
	Mean	Std. Dev.	Std. Error	t	df	Bias	Std. Error	Sig. (2-tailed)	Percentage Change
PsT1 - PrT	-0.965	2.337	0.310	-3.117	56	0.003	0.312	0.003	-9.852%
PsT2 - PrT	0.719	2.513	0.333	2.161	56	0.004	0.329	0.035	-13.222%
PsT2 - PsT1	0.246	1.405	0.186	-1.32	56	0.009	0.183	0.213	-3.395%

Table 2: Pre and Post Intervention-test on paired difference in General Attitude to Offending

The results were bootstrapped for bias correction due to the violation of the normality assumption. As shown in the table, the tests on the paired differences were found to be significant between post-test1 and pre-test ( $t=-3.117$ ,  $p$ -value=0.003) and between post-test2 and pre-test ( $t=-2.161$ ,  $p$ -value=0.035). The p-values of the t-statistics are all less than 0.05 which shows that there are significant differences in the general attitudes of the sexual offenders before and after treatment. The differences between the post-tests and the pre-test are negative which shows lower scores in general attitude after intervention by exposure thus implying a significant reduction in the general attitude scores and an improvement in general attitude towards sexual crimes when the offenders are treated by exposure to digital paintings by at least 9.852% immediately after treatment.

The results however revealed that the paired differences between post-test 2 and post-test1 were insignificant ( $t=-1.32$ ,  $p$ -value=0.213). The p-value is greater than 0.05 which shows that there is no significant difference in the general attitudes of the offenders between as assessed immediately after the treatment and two weeks after the treatment. This implies that there was no significant difference in the attitude of the offenders after treatment 2 weeks after being exposed to the paintings.

Statistics further show that the difference was higher between post-test 2 and pre-test than between post-test1 and pre-test. It was also noted that the actual mean scores of the differences between post-test 2 and post-test1 is negative.

The mean attitudes assessed before intervention, immediately after intervention and two weeks after intervention were plotted with results showing that the mean scores of general attitudes dropped considerably from pre-test

to post-test1 but only slightly between post-test1 and post-test 2. The plot is shown in Figure 4 below:

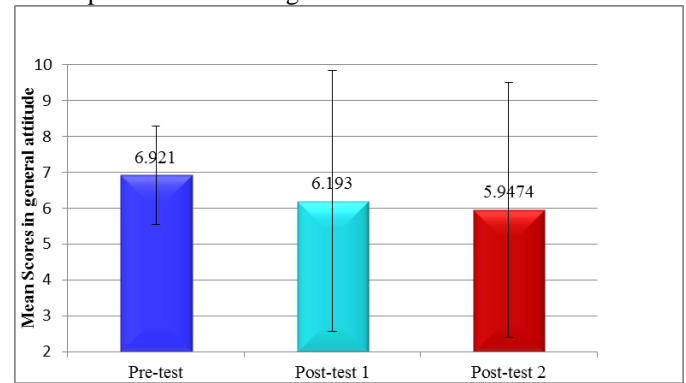


Figure 4: Pre-Test and Post-Tests Mean Difference Plot of General Attitude

In Crime Pics II, a drop in the attitude score implies an improvement in attitude. The t-test revealed that the drop from pre-test to the post-test 1 was significant but that between post-test1 and post-test 2 was insignificant.

b. POST EXPOSURE EFFECTS ON MALE SEXUAL OFFENDERS' ANTICIPATION OF RE-OFFENDING

Figure 4 is a histogram displaying the distribution of the difference between the pre-test and post-test1 attitude of sexual offenders towards anticipation to re-committing a sexual offence.

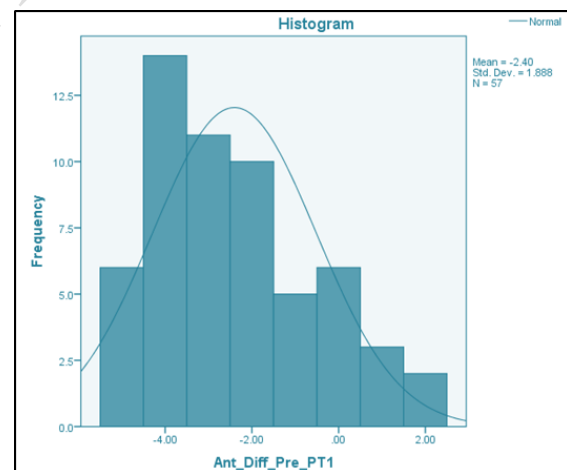


Figure 4: Paired Differences in Anticipation towards Re-Offending between Pre-Test and Post-Test1

The histogram show a virtually skewed distribution to the left which imply possible deviation from normality. Further to the histogram, normality of the paired differences was assessed and confirmed using Shapiro-Wilk tests. The Table 3 shows the normality test of the paired differences between all the three variables; between pre-test and both post-test1 and post-test2 and between the two post-tests.

	Statistic	df	Sig.	Statistic	df	Sig.
Post-test 1 – Pre-test	0.168	57	0.000	0.924	57.000	0.001
Post-test 2 – Pre-test	0.146	57	0.004	0.932	57.000	0.003
Post-test 2 – Post-test 1	0.185	57	0.000	0.942	57.000	0.009

Table 3: Pre and Post Intervention Normality Test on Difference in Anticipation of Re-Offending

The Shapiro-Wilk statistics all have p-values less than 0.05 implying that they all deviated from normality and do not follow a normal distribution. Due to the violation of the normality assumption of the paired sample t-test, a bootstrap was carried out for the test. Table 4 shows the t-tests of paired differences between the assessments of attitude on the sexual offenders' anticipation of re-offending.

	Paired differences			Bootstrapped Bias corrected test					
	Mean	Std. Dev.	Change	t	df	Bias	Std. Error	Sig. (2-tailed)	Percentage Change
PsT1 - PrT	-	1.910	0.253	-	56	0.006	0.258	0.001	-30.162%
PsT2 - PrT	2.175	1.889	0.250	8.600	56	0.000	0.256	0.001	-33.338%
PsT2 - PsT1	0.228	1.763	0.234	0.977	56	-	0.234	0.340	-3.735%

Table 4: Pre and Post intervention T-Test on Paired Difference in Anticipation of Re-Offending

As shown in the table, the tests on the paired differences were found to be significant between post-test1 and pre-test ( $t=-8.600$ ,  $p\text{-value}=0.001$ ) and between post-test2 and pre-test ( $t=-9.609$ ,  $p\text{-value}=0.001$ ). The p-values of the t-statistics are all less than 0.05 which shows that there are significant differences in the sexual offenders' anticipation of re-offending before and after treatment. The differences between the post-tests 1 and 2 and the pre-test are -30.162% -33.338% respectively which show lower scores of the sexual offenders' anticipation of re-offending after treatment. This implies a significant drop in the sexual offenders' anticipation of re-committing a sexual offence when treated by exposure to digital paintings.

The results however revealed that the paired differences between post-test 2 and post-test1 were insignificant ( $t=0.977$ ,  $p\text{-value}=0.234$ ). The p-value is greater than 0.05 which shows that there is no significant paired differences in the sexual offenders' anticipation of re-offending as assessed immediately after the treatment and two weeks after the treatment, implying that the time difference had no significant effect on attitudes. The table shows that the difference was higher between post-test 2 and pre-test than between post-test1 and pre-test, while the actual mean of the differences between post-test 2 and post-test1 is negative.

The mean attitudes as assessed before treatment, immediately after treatment and 2 weeks after treatment were plotted as shown in Figure 5. The figure shows that the mean scores of the sexual offenders' anticipation of re-offending dropped considerably from pre-test to post-test1 but only slightly between post-test1 and post-test 2. The t-test however revealed that the drop from pre-test to the post-tests was significant but that between post-test1 and post-test 2 was insignificant.

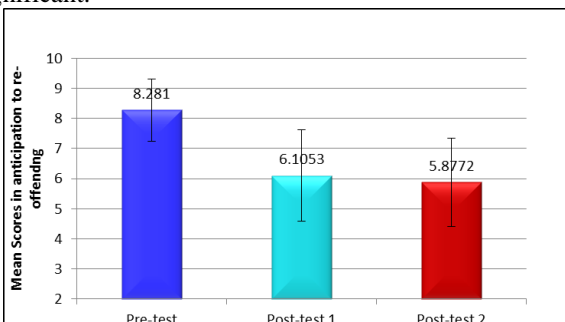


Figure 4.5: Pre-Test and Post-Tests Mean Difference Plot of Anticipation of Re-Offending

c. POST EXPOSURE EFFECTS ON VICTIM HURT DENIAL

The test on the effect of exposure to digital paintings on male sexual offenders' attitudes on victim hurt denial was also carried out. Figure 6 is a histogram displaying the distributions of the paired differences between the pre-test and post-test1 of the sexual offenders' victim hurt denial.

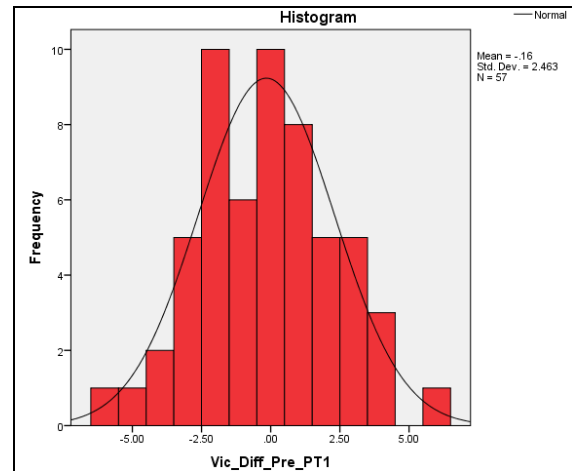


Figure 1: Paired Differences in Victim Hurt Denial between Pre-Test and Post-Test1

The histograms visualization portrays a seemingly normal distribution curve that is not skewed on either sides and possibly not deviating from normality. In addition to the histogram for visual depiction of the distribution of the paired differences, Table 4.5 shows a normality test based on the Shapiro-Wilk statistics.

	Statistic	df	Sig.	Statistic	df	Sig.
Post-test 1 - Pre-test	0.106	57	0.169	0.983	57	0.578
Post-test 2 - Pre-test	0.129	57	0.019	0.963	57	0.077
Post-test 2 - Post-test 1	0.145	57	0.005	0.959	57	0.065

Table 5: Pre and Post Intervention Normality Test on Difference in Victim Hurt Denial

From the results, it was noted that the seemingly normal distribution depicted by the symmetric histogram is confirmed by the Shapiro-Wilk test with test statistics that all had p-values greater than 0.05 implying that they all deviated from normality and did not follow a normal distribution. As the assumption of normality was not violated, the paired sample t-test was carried out and results presented without bootstrapping. Table 6 shows the t-tests of paired differences between the assessments of the sexual offenders' attitude on victim hurt denial.

	Paired Differences						
	Mean	Std. Dev.	Std. Error	t	df	Sig. (2-tailed)	Percentage change
PsT1 - PrT	0.017	2.594	0.343	0.051	56	0.959	0.355%
PsT2 - PrT	-	2.462	0.326	-	56	0.630	-3.278%
PsT2 - PsT1	0.157	1.743	0.230	-0.76	56	0.451	-3.500%
	0.175						

Table 6: Pre and Post Intervention T-test on Paired Difference in Victim Hurt Denial

The results were bootstrapped for bias correction due to the violation of the normality assumption. As shown in the

table, the tests on the paired differences were all found to be insignificant between post-test1 and pre-test ( $t=0.051$ ,  $p$ -value=0.959), post-test2 and pre-test ( $t=-0.484$ ,  $p$ -value=0.630) and between post-test2 and post-test1 were insignificant ( $t=-0.760$ ,  $p$ -value=0.451). The  $p$ -values of the  $t$ -statistics are all greater than 0.05 which shows that there are no significant differences in the sexual offenders' victim hurt denial before and after treatment. The paired differences are all insignificant which implies that treatment by exposure to digital paintings resulted in no significant improvement in the sexual offenders' attitudes concerning their denial of hurting the victims.

The difference was higher between post-test 2 and pre-test than between post-test1 pre-test and also that the actual mean of the differences between post-test 2 and post-test1 is negative. The mean attitudes as assessed before treatment immediately after treatment and 2 weeks after treatment were plotted as shown in Figure 7

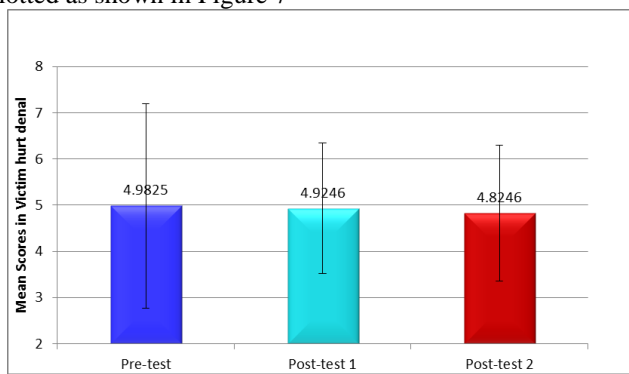


Figure 7: Pre-Test and Post-Tests Mean Difference Plot of Victim Hurt Denial

The figure shows that the mean scores of victim hurt denial slightly increased immediately after exposure but tended to improve considerably slower when tested 2 weeks after exposure. The  $t$ -test however revealed that the improvement from pre-test to the post-tests as well as between post-test1 and post-test 2 were all insignificant.

d. POST INTERVENTION EFFECTS ON MALE SEXUAL OFFENDERS' EVALUATION OF CRIME AS WORTHWHILE

Figure 8 is a histogram displaying the distribution of the difference between the pre-test and post-test1 attitude of sexual offenders towards evaluation of crime as worthwhile.

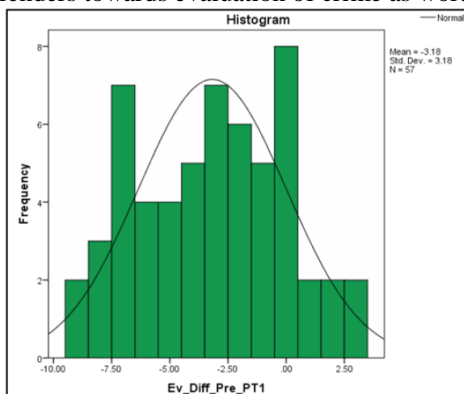


Figure 8: Histogram on Paired Differences in Evaluation of Crime as Worthwhile between Pre-Test and Post-Test1

The histogram shows a virtually skewed distribution to the left which imply slightly possible deviation from normality. Normality of the paired differences was assessed and confirmed using Shapiro-Wilk tests. The Table 7 shows the normality test of the paired differences between all the three variables; between pre-test and both post-test1 and post-test 2 and between the two post-tests.

	Statistic	df	Sig.	Statistic	df	Sig.
Post-test 1 – Pre-test	0.096	57	.200*	0.966	57	0.106
Post-test 2 – Pre-test	0.101	57	.200*	0.967	57	0.121
Post-test 2 – Post-test 1	0.096	57	.200*	0.966	57	0.106

Table 7: Pre and Post Exposure Normality Test on Difference in Evaluation of Crime as Worthwhile

The Shapiro-Wilk statistics all have  $p$ -values greater than 0.05 implying that there were no deviations from normality and that the differences follow a normal distribution. Table.8 shows the  $t$ -tests of paired differences between the assessments of attitude on the sexual offenders' evaluation of crime as worthwhile.

	Paired Differences						
	Mean	Std. Dev.	Std. Error	t	df	Sig. (2-tailed)	Percentage Change
PsT1 - PrT	-3.175	3.180	0.421	-7.539	56	0.000	-53.395%
PsT2 - PrT	-3.035	3.190	0.423	-7.183	56	0.000	-55.859%
PsT2 - PsT1	-0.140	1.274	0.169	-0.832	56	0.409	-14.784%

Table 8: Pre and post Intervention T-test on Paired Difference in Evaluation of Crime as Worthwhile

As shown in the table, the tests on the paired differences were found to be significant between post-test1 and pre-test ( $t=-7.539$ ,  $p$ -value=0.000) and between post-test 2 and pre-test ( $t=-7.183$ ,  $p$ -value=0.000). The  $p$ -values of the  $t$ -statistics are all less than 0.05 which shows that there are significant differences in the sexual offenders' evaluation of crime as worthwhile before and after treatment. The differences between the post-tests 1 and 2 and the pre-test are -53.395% and -55.859% respectively which show lower scores of the sexual offenders' evaluation of crime as worthwhile after treatment. This implies a significant drop in the sexual offenders' evaluation of sexual crimes as worthwhile after exposure to digital paintings. The results however revealed that the paired differences between post-test 2 and post-test1 were insignificant ( $t=-0.832$ ,  $p$ -value=0.409). The  $p$ -value is greater than 0.05 which shows that there are no significant paired differences in the sexual offenders' evaluation of crime as worthwhile as assessed immediately after treatment and two weeks after treatment, implying that improved attitudes remained largely unaffected by lapse in time.

The difference was higher between post-test 2 and pre-test than between post-test1 pre-test. The actual mean of the differences between post-test2 and post-test1 was found to be negative. The mean attitudes as assessed before intervention, immediately after intervention and 2 weeks after intervention were plotted as shown in Figure 9.

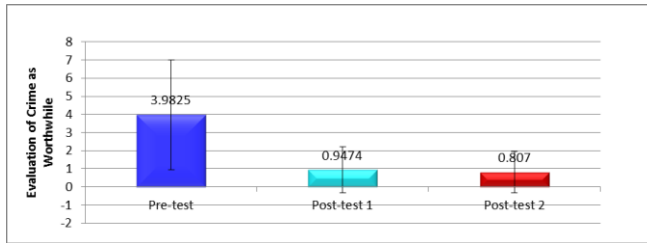


Figure 9: Pre-Test and Post-Tests Mean Difference Plot on Evaluation of Crime as Worthwhile

The figure shows that the mean scores of the sexual offenders' evaluation of crime as worthwhile reduced considerably and was higher from pre-test to post-test1, but only slightly different between post-test1 and post-test 2. The t-test revealed that the improvement from pre-test to the post-tests was significant but that between post-test1 and post-test 2 was insignificant.

**e. POST INTERVENTION EFFECTS ON MALE SEXUAL OFFENDERS' PERCEPTION TOWARDS LIFE PROBLEMS**

The test on the effect of exposure to digital paintings on male sexual offenders' attitudes was also carried out on their perceptions towards life problems. Figure 10 is a histogram displaying the distributions of the paired differences between the pre-test and post-test1 of the sexual offenders' perceptions towards life problems.

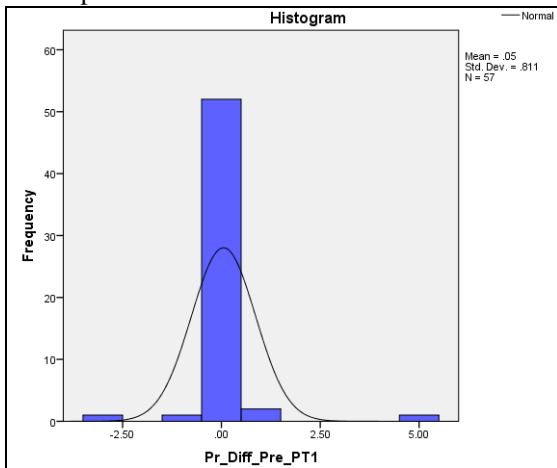


Figure 10: Histogram on Paired Differences in Perceptions towards Life Problems between Pre-Test and Post-Test1

The histograms show a virtually skewed distribution to the right to imply possible deviation from normality. Table 9 shows a normality test based on the Shapiro-Wilk statistics.

	Statistic	df	Sig.	Statistic	df	Sig.
Post-test 1 – Pre-test	0.473	57	0.000	0.317	57	0.000
Post-test 1 – Pre-test	0.482	57	0.000	0.28	57	0.000
Post-test 2 – Post-test 1	0.535	57	0.000	0.114	57	0.000

Table 4.9: Pre and Post Intervention Normality Test on Difference in Life Problems perception

From the results, it was noted that despite the seemingly normal distribution depicted by the symmetric histogram, the Shapiro-Wilk statistics all have p-values less than 0.05 implying that they all deviated from normality and do not follow a normal distribution. Due to the violation of the normality assumption of the paired sample t-test, a bootstrap

was carried out for the test. Table 10 shows the t-tests of paired differences between the assessments of the sexual offenders' attitude on perceptions towards life problems.

	Paired differences					Bootstrapped Bias corrected test			Percentage Change
	Mean	Std. Dev	Std. Error	t	df	Bias	Std. Error	Sig. (2-tailed)	
PsT1 - PrT	0.070	0.799	0.106	0.51	56	.0046	.1072	.568	2.100%
PsT2 - PrT	0.018	0.132	0.018	0.322	56	.0098	.0136	.111	0.540%
PsT2 - PsT1	-	0.811	0.107	-	56	.0022	.1083	.685	-0.592%
				0.626					

Table 4.10: Pre and Post Intervention T-Test on Paired Difference in Life Problems Perception

As indicated in the table, the tests on the paired differences were all found to be insignificant between post-test1 and pre-test (t= 0.51, p-value=0.568), post-test 2 and pre-test (t= 0.322, p-value=0.111) and between post-test 2 and post-test1 were insignificant (t= -0.626, p-value=0.685). The p-values of the t-statistics are all greater than 0.05 which show that there were no significant differences in the sexual offenders' perceptions towards life problems before and after treatment. The paired differences are all insignificant which implies that treatment by exposure to digital paintings results in no significant improvement in the sexual offenders' attitudes concerning their perceptions towards life problems. The mean attitudes on the sexual offenders' perceptions towards life problems as assessed before intervention, immediately after intervention and 2 weeks after intervention were plotted as shown in Figure 11.

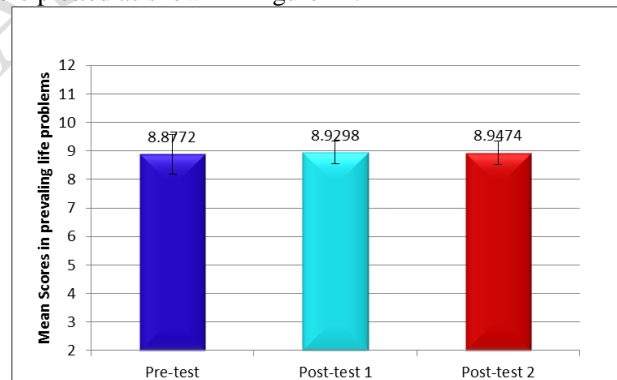


Figure 11: Pre-Test and Post-Tests Mean Difference Plot on Perception of Life Problems

The figure shows that the mean scores of perceptions towards life problems increased from pre-test to post-test1 but only a very slight dropped was reported between post-test1 and post-test 2. The t-test however revealed that the difference in mean scores from pre-test to the post-tests and between post-test1 and post-test 2 were insignificant. This implied that exposure to digital paintings based on the themes of sexual crime had no significant effect on offenders' perceptions towards life problems.

**B. POST INTERVENTION ATTITUDINAL DIFFERENCE IN MALE SEXUAL OFFENDERS BASED ON FORMATS OF EXPOSURE TO DIGITAL PAINTINGS**

The study further assessed difference in the attitudes of the sexual offenders after treatment between participants



exposed to digital paintings by viewing in exhibition and by projection in Rapid Serial Visual Presentation format. Figure 12 shows the levels of attitude for the 2 groups after treatment.

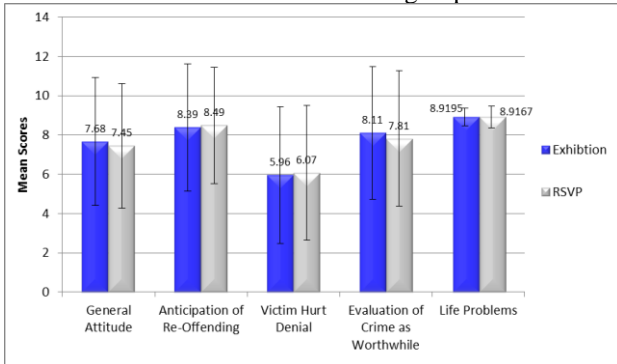


Figure 12: Profile Plot of Mean Attitude based on Formats of Exposure

The two groups of participants seem to have alternating highest level of attitude on the different attitudinal measures. The group exposed by viewing in exhibition had a virtually higher mean in general attitude, evaluation of crime as worthwhile and life problems while the group exposed by RSVP virtually seem to have higher means in victim hurt denial and anticipation of re-offending. Figure 12 further shows that the attitudinal levels vary randomly but have virtually very minimal differences between the two groups on all the attitudinal measures.

A repeated measure test was carried out to assess the between subjects effect of formats of exposure on the attitude towards sexual crimes as shown in Table 11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	1141.075	1	1141.075	97.201	.000
Format of Exposure	42.759	1	42.759	3.642	.059
Error	1314.805	112	11.739		

Table 4.11: Attitudinal Difference Test between Formats of Exposure

The F-statistic of the binary categorical variable is 3.642 with a p-value of 0.059 which is greater than 0.05 to imply an insignificant between subjects attitude effects based on mode of presentation. On the analysis carried out, the p-value of the F-statistic was found to be greater than 0.05 implying no significant attitudinal differences arising from format of exposure.

## V. DISCUSSION OF FINDINGS

Two post tests were carried out after exposure to digital paintings. The differences between the post-tests and the pre-test scores were found to be negative, indicating implying a significant improvement in sexual offenders' attitudes towards crime after exposure to digital paintings. The first pretest carried out immediately at the end of the last exposure session found lower attitude measures across all scales. The G scale had an attitude measure of 6.193, A scale 6.105, V scale 4.924 and E scale 0.947. The second pretest carried two weeks after last exposure session found a further slight reduction across all attitude measures on all scales. The G scale posted a measure of 5.947, A scale 5.877, V scale 4.284 and E scale 0.807. The

lower attitudes measures across most scales implied an improvement in attitude.

A repeated measure test carried out to assess the between subjects effect of formats of exposure on the attitude towards sexual crimes was used to test the second hypothesis of the study:

*H<sub>02</sub>: There is no significant attitudinal difference in male sexual offenders exposed to digital paintings by exhibition or by projection in Rapid Serial Visual Presentation.*

The t-test statistics had a p-value of 0.059 which is greater than 0.05 implying no significant difference between subject effects based on mode of presentation. The study thus failed to reject the null hypothesis and deduced that the format of exposure had no significant effect on the attitudinal responses of male sexual offenders.

The p-value of the t-statistics of the paired differences in scale G (general attitudes to offending), Scale A (anticipation for re-offending) and scale E (evaluation of crime as worthwhile) were found to be less than 0.5 between pre- test and posttests 1 and 2. The results in this section were used to test the third hypothesis of the study and draw conclusions:

*H<sub>03</sub>: There is no significant difference in male sexual offenders' attitudes towards sexual crimes after exposure to digital paintings.*

The null hypothesis was thus rejected and the study deduced that there is a significant difference in male sexual offenders' attitudes towards sexual crimes after exposure to digital paintings. This implied that exposure of sexual offenders to digital paintings illustrating consequences of sexual crimes had a significant effect on their attitudes towards sexual crimes regardless of the format of exposure used.

Scale V (victim hurt denial) was the lowest scoring index, both pre- and post-testing, with p-value greater than 0.5, implying insignificant difference in attitude in this scale. These observations conform to findings in a related study by Williamson et.al., (2018), who found lower scores in scale V. The authors of Crime Pics II also accept that the nature of offence is likely to have an impact on scoring in this scale. (Williamson et.al, 2018). Statistics further showed that the difference was higher between post-test 2 and pre-test than between post-test1 and pre-test. The t-test statistics however showed no significant improvement in attitude, with p-values higher than 0.5 between pre- test and posttests 1 and 2. The minimal difference in the post-test assessment averages with post-test 2 averages slightly lower than the post-test1 averages suggest sustainability of attitude improvement (effects) long after treatment.

Ratings on perception of current life problems found no significant changes in pretest and posttest scores across the groups of participants. This implied that exposure to digital paintings had no significant effect on offenders' perceptions towards life problems. Compared to the pretest score of 8.877, mean scores in the problem inventory recorded a slight increase of 8.947 at poste test 1 and slight decrease at posttest 2.893. The t-test however revealed that the changes in scores between pre-test and post-tests were insignificant with p-values greater than 0.5. These findings are not unique given that Williamson et. al., (2018) acknowledge that there is no simple relationship between life problems and offending. They

argued that a factor beyond the impact of an individual's thought and action would be in play despite the positive changes in attitudes and thinking patterns which may enhance coping capacity and raise positive life chances. This study posits that personal resources impact how offenders manage what they consider to be a significant or non-significant problem in their lives.

## VI. CONCLUSION AND RECOMMENDATIONS

The novel result of the study was that male sexual offenders' attitudes improved following exposure to digital paintings illustrating the consequences of sexual crimes. The presents study expands on previous research and literature on art based offender rehabilitation by focusing on the use of digital paintings in rehabilitating sex offenders. The findings suggest interdependency between improved attitudes towards crime and exposure to digital paintings. Detailed analyses for each domain found significant improvement from pretest to posttest in general attitudes (G scale), lower anticipation for re-offending (A scale) and lower evaluation of crime as worthwhile (E scale). However, Victim hurt denial (V scale) and perception towards life problems (P scale) registered insignificant improvement.

Future research could therefore explore how attitudinal impact related to V scale and P scale could be improved. Exposure to digital paintings illustrating consequences of crime could be expanded to include juvenile and female sex offenders. Specific contextual features could also be manipulated to explore other consequences of sexual crimes not covered in this study. Since exposure to visual art by passive viewing has been shown to improve attitudes towards crime, it may be beneficial to carry out comparative studies using active participatory approaches in arts.

Further research may need to be conducted on the effects of exposure to digital paintings beyond the period of imprisonment. Despite ever-growing scholarly interest in crime desistance after release from custody, there is very little information on the impact, if any, that rehabilitation programs in Kenya may have on participants after release from prison and are faced with the multifarious challenges upon re-entry into the community

In essence, the paper contributes to informing decisions regarding the design, development and delivery of best-practices for visual art interventions throughout the prisons in Kenya.

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