

ORIGINAL RESEARCH ARTICLE

Media communication programmes and HIV transmission risk behaviour among sexually active South African youths

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Clifford O. Odimegwu¹, Yemi Adewoyin^{1,2*} and Nyasha Mutanda¹

Demography and Population Studies Programme, Schools of Public Health and Social Sciences, University of the Witwatersrand, Johannesburg, South Africa¹; Department of Geography, Faculty of the Social Sciences, University of Nigeria, Nsukka, Nigeria²

*For Correspondence: Email: yemiadewoyin@yahoo.com; Phone: +2348062932175

Abstract

South Africa houses 30% of sub-Saharan Africa's burden of HIV/AIDS, estimated at 25.7 million cases. To increase awareness among the population and encourage a behavioural change to stem its transmission, several HIV media communication programmes (HCP) have been instituted in the country. Findings on the efficacy of these programmes on HIV transmission risk behaviour have however been divergent. Using the Third National Communications Survey (NCS) in South Africa, this study investigates how exposure to HCP has affected condom use and multiple sexual partnership (MSP) among 2,247 sexually active South African youths aged 16-24. Analysis was done at univariate, bivariate and multivariate levels using Stata statistical software. Results show that 89.7% of the respondents were exposed to at least one form of HCP, 62.2% had low knowledge of HIV transmission, 48.9% used condoms while 12.6% engaged in MSP. Although HCP was associated with increased odds of condom use only among youths with low exposure, it had no statistically significant effect among youths with higher exposure and on MSP. As HCP exerts no influence on HIV risk behaviour among the studied cohort, tailor-made programmes focusing on the sociodemographic confounders of the behaviour might make HCP more effective. (*Afr J Reprod Health* 2020; 24[3]: 126-134).

Keywords: HIV communication programmes, condom use, multiple sexual partnership, Youths, South Africa

Résumé

L'Afrique du Sud abrite 30% du fardeau du VIH / sida en Afrique subsaharienne, estimé à 25,7 millions de cas. Pour sensibiliser la population et encourager un changement de comportement pour endiguer sa transmission, plusieurs programmes de communication médiatique (HCP) VIH ont été mis en place dans le pays. Les résultats sur l'efficacité de ces programmes sur les comportements à risque de transmission du VIH ont cependant été divergents. À l'aide de la troisième enquête nationale sur les communications (NCS) en Afrique du Sud, cette étude examine comment l'exposition aux professionnels de la santé a affecté l'utilisation du préservatif et le partenariat sexuel multiple (MSP) chez 2247 jeunes sud-africains sexuellement actifs âgés de 16 à 24 ans. L'analyse a été effectuée à des niveaux univarié, bivarié et multivarié à l'aide du logiciel statistique Stata. Les résultats montrent que 89,7% des personnes interrogées étaient exposées à au moins une forme de PS, 62,2% avaient une faible connaissance de la transmission du VIH, 48,9% utilisaient des préservatifs et 12,6% étaient engagées dans la MSP. Bien que le HCP ait été associé à une probabilité accrue d'utiliser le préservatif uniquement chez les jeunes peu exposés, il n'a eu aucun effet statistiquement significatif chez les jeunes plus exposés et sur la MSP. Comme le professionnel de la santé n'exerce aucune influence sur le comportement à risque du VIH au sein de la cohorte étudiée, des programmes sur mesure axés sur les facteurs de confusion sociodémographiques du comportement pourraient rendre le professionnel de la santé plus efficace. (*Afr J Reprod Health* 2020; 24[3]: 126-134).

Mots-clés: Programmes de communication sur le VIH, utilisation du préservatif, partenariat sexuel multiple, jeunes, Afrique du Sud

Introduction

Of the estimated 38 million people living with HIV/AIDS across the world in 2018, 67.8% lived in sub-Saharan Africa (SSA)¹. With nearly 8 million people living with the disease in South Africa in the same period, and with a prevalence

rate of 20.4% among the general population², South Africa houses 30% of the SSA burden and has the highest prevalence in the world. Against the background that there is no cure for the disease yet, global efforts at controlling its transmission have centered around enhanced media communication for unmarried people to abstain

from having sex – a major pathway for the spread of HIV/AIDS, for people in a union or relationship to be faithful to a single partner, and to promote safe and protected sex using condom. A number of studies have been done to examine the effectiveness of HIV mass media campaigns on behaviour change, raising HIV awareness, HIV knowledge and changing attitudes towards HIV³⁻⁷. Findings from these studies have, however, been mixed and ranged from no effect, small to medium effect, to substantive positive effects³⁻⁷. An underlying factor in the divergent findings is in the choice of behavioural outcomes measured by the studies. In a systematic review by Bertrand *et al*³, studies that assessed outcomes such as abstinence, perceived risk of HIV infection, self-efficacy, interpersonal communication between partners/spouse, and condom use did not report any statistical significant effect while about half of the studies that looked at HIV transmission knowledge and the prevalence of risky sexual behaviour showed that mass media interventions had a positive effect on these outcomes.

As elsewhere, several media communications programmes have been designed and implemented in South Africa in a bid to promote safe and protective sexual behaviours^{8,9}. These include the government-supported school intervention programmes, Johns Hopkins Health and Education in South Africa, Soul City, and LoveLife programmes. These campaigns employed various HIV communication programmes (HCPs) disseminated using a variety of media such as mass media (television, radio and print media), internet, and social media (Facebook and Twitter) to increase HIV awareness and influence behavioural change. In spite of these, progress in stemming HIV/AIDS transmission has been slow, particularly among young adults who have been identified as constituting the population at higher risk of HIV infection¹. Young people aged between 15-24 years constitute about 17% of the South African population and HIV prevalence rate for the age group is estimated at about 4.6%¹⁰. Studies have shown that these programmes have led to an increase in the knowledge of HIV and its transmission, increased the uptake of HIV testing, increase in levels of condom use and lowered the stigmatization of people living with HIV/AIDS in South Africa^{6,11,12}.

None of the studies however showed how exposure to these media campaigns have

influenced the practice of having multiple sexual partners among young people. While majority of the studies also concentrated on the influence of media campaign on HIV knowledge, testing, and stigmatization of people living with HIV/AIDS, the few that looked at its effects on condom use did not control for other confounders of condom use like socioeconomic status and marital status, which, alongside age at first sex, employment status and place of residence, have been found to have implications for sexual behaviour and the risk of HIV transmission¹³⁻¹⁸. Further, the studies looked at the young adults as a unit without distinguishing between those who have had sex and those who have not. This certainly has implications for condom use and having multiple sexual partners and would have influenced the findings from the studies. From the foregoing, this study, therefore, investigated the effects of exposure to HIV media campaign programmes (HCP) on condom use and having multiple sexual partners among youths aged 16-24 in South Africa who have had sex. Owing to widely documented evidence on the gender disparity in HIV/AIDS prevalence, this study further presents the study findings along the gender lines to guide gender-specific policy formulation on HIV/AIDS in South Africa.

Methods

Sampling and data source

South African youths between the ages of 16 and 24, and who have had sex, constituted the study population. Unlike other studies that use age 15 as the entry point for this cohort, the choice of age 16 as the entry point in this study is predicated on 16 being the age of sexual consent in South Africa. Study data were extracted from the Third National Communications Survey (NCS) in South Africa. The survey, conducted by the John Hopkins Health and Education in South Africa in 2012, was aimed at evaluating the impact of HCPs on the main drivers of HIV epidemic in the nine provinces of South Africa. The survey collected data from a nationally representative sample of 10,034 men and women across all population groups aged between 16 and 55 years who represented the 28,092,779 persons of the selected population group. For this study, a total of 2,247 respondents comprising 1,301 females and 946

males aged 16-24 and who have had sex constituted the sample size. The survey collected data on socio-demographic characteristics of the respondents, their knowledge of HIV, their exposure to HCPs, as well as on their sexual behaviour using indicators such as condom use during sex, and number of sexual partners among others.

Variables

HIV risk behaviour was the main dependent variable in this study. This connotes any form of behaviour that predisposes an individual to HIV/AIDS infection. In this study, it is measured by two outcomes. These are condom use during last sexual intercourse with the most recent partner, and having multiple sexual partners in the 12 months preceding the survey. Condom use was derived from the question 'Did you use a condom the last time you had sex with this person (recent partner)?' in the survey. The responses were categorized as Yes or No. Having multiple sexual partners was derived from the question 'Overall, how many different people did you have sex with within the past 12 months (including your spouse or live-in partner)?'. Where the response was one partner, this was coded as 'No' while more than one was coded as 'Yes'. In other words, respondents without multiple partners were assigned a 'No' while those who had were assigned a 'Yes'. The main predictor variable was exposure to HIV media campaign programme (HCP). This was aggregated from the respondents' exposure to any HIV-related media campaign on the television, billboards, radio, or in the newspapers, magazines, and social media. In the survey, there were 19 questions measuring this exposure. Each of these questions was assigned a score of 1, such that an exposure to all, that is a yes response to each of the 19 questions, earned a respondent a score of 19 while no exposure carried a score of 0. The range of scores 0-19 was thereafter recoded as 1 for no exposure, 2 for low exposure (a score of 1-6), 3 for medium exposure (a score of 7-12) and 4 for high exposure (a score of 13-19). Other predictor variables employed in the study were age, sex, marital status, educational attainment, employment status, age at first sex, place of residence, province of residence, knowledge of HIV transmission modes, knowledge of own HIV status, and the

respondents' socioeconomic status. These, as stated earlier, have been shown to confound HIV risk behaviour.

Data analysis

The analyses for this study were done in three stages using Stata version 14. In the first stage descriptive statistics were used to describe the characteristics of the study population. In the second stage, the association between the dependent variables (condom use and having multiple sexual partners) and the independent variables was examined at the bivariate level using Chi Square test. At a multivariate level and using the binary logistic regression analysis, the influence of exposure to HIV media communication programme on the dependent variables was examined. How the outcomes are influenced by other confounders was also examined. The confounders used in the regression analyses were age, marital status, educational attainment, employment status, age at first sex, place of residence, province of residence, and the respondents' socioeconomic status. Eight regression models were run; one each for both female and male youths in the unadjusted and adjusted forms for each of the dependent variables. In other words, in the first set, there are two models (unadjusted and adjusted) for HCP and condom use for females, and two models for males on the same relationship. The second set equally has two models (unadjusted and adjusted) on the relationship between HCP and having multiple partners among females and two models on the same relationship among males.

Results

Description of the study sample and bivariate associations

The study sample comprised 57.9% female respondents while respondents aged 22-24 constituted 46.6% of the sample. Majority of the sampled population (83.9%) were single, 54.4% were unemployed, 89.8% completed primary and secondary education while respondents from both the low and high socioeconomic categories were 30% apiece. As shown in Table 1, only 17.4% of the respondents lived in rural areas while Kwazulu Natal and Gauteng provinces accounted for 21.4%

Table 1: Sociodemographic characteristics of South African youths and their association with the dependent variables

Variable	Respondents % (N = 2247)	Usage of Condom %	F-Value	Having Multiple Sexual Partners %	F-Value
Age			19.6**		3.8
16-18	13.4	67.0		12.2	
19-21	40.0	65.7		15.1	
22-24	46.6	55.9		17.2	
Sex			11.6**		78.6**
Male	42.1	65.8		24.5	
Female	57.9	57.9		9.1	
Marital Status			67.7**		13.9*
Single	83.9	64.6		16.6	
Married, Living Apart	0.7	33.3		8.3	
Married, Living with Partner	2.8	21.7		1.7	
Unmarried, Cohabiting	10.0	47.4		11.9	
Divorced/Widow	0.3	66.7		33.3	
Others	2.3	70.0		20.0	
Employment Status			32.5**		3.3
Student	27.3	72.0		15.3	
Employed	17.3	57.4		18.2	
Unemployed	54.4	57.2		14.9	
Others	1.0	66.7		26.7	
Sex Debut			17.9**		32.3**
<16 years	21.1	52.1		19.6	
16-17 years	42.2	63.2		18.8	
18-19 years	27.2	63.1		11.7	
20+	9.5	67.5		4.2	
Education			32.3**		8.8
None	0.2	-		-	
Primary	4.0	43.7		18.3	
Grade 11	42.9	57.1		15.6	
Matric	42.9	66.7		15.7	
Tertiary	9.7	64.4		14.3	
Others	0.3	40.0		60.0	
Socioeconomic Status			19.4**		11.5**
Low	30.1	54.9		13.4	
Medium	39.9	61.1		19.3	
High	30.0	67.9		13.3	
Place of Residence			16.1**		15.2**
Rural	17.4	53.3		10.4	
Peri-Urban	11.4	60.7		10.7	
Urban Informal	35.2	59.7		16.3	
Urban Formal	36.0	66.5		18.9	
Province			31.5**		46.9**
Eastern Cape	11.8	56.2		10.9	
Free State	7.0	64.0		26.6	
Gauteng	20.2	66.0		22.3	
Kwazulu Natal	21.4	66.0		14.7	
Limpopo	10.9	50.3		9.6	
Mpumalanga	7.9	63.7		7.0	
Northern Cape	1.8	54.5		21.2	
North West	6.6	68.6		19.0	
Western Cape	12.4	50.9		11.7	
Knowledge of HIV Transmission			3.9		2.0
Low	62.2	61.0		15.8	
High	36.1	62.5		16.0	
None	1.7	45.2		6.5	
Knowledge of Status			0.6		12.1**
Yes	68.6	60.7		13.7	
No	31.4	62.6		20.2	
HCP Exposure			18.3**		6.1
None	10.3	50.3		10.1	

Low	57.1	59.9	16.6
Medium	30.4	66.8	15.5
High	2.1	67.4	20.9
Usage of Condom			
Yes	48.9	-	-
No	30.9	-	-
Multiple Sexual Partners			
Yes	12.6	-	-
No	67.5	-	-

*Significant at $P < 0.05$, **Significant at $P < 0.001$

and 20.2% of the respondents respectively. More than 42% of the respondents were aged between 16 and 17 when they first had sex while only 9.5% had their sex debut when they were aged 20 and above. Nearly two-thirds of the respondents had low knowledge of HIV transmission modes and 31.4% did not know their HIV status. About 10% claimed not to have been exposed to any HIV media communication programme, 30.9% did not use condom during sexual intercourse with their last partner and 12.6% had multiple sexual partners.

The dimensions of condom usage among the study population show that condom usage was more prevalent (67.0%) among respondents aged 16-18. Relative to the other age groups, condom usage was lowest among respondents aged 22-24 (55.9%). More males (65.8%), singles (64.6%), students (72.0%) and respondents who had a late sex debut (67.5%) also used condoms than other demographics in the same categories (Table 1). Respondents with high socioeconomic status (67.9%), who had a matric – completion of secondary education (66.7%), lived in formal urban settlements (36.0%) and who dwelled in the North West province (68.6%) had the highest prevalence of condom use in their respective categories. More than 62% of respondents who didn't know their status used condoms just as 45.2% of those who had no knowledge of HIV transmission also used condoms. Expectedly, condom use was highest among respondents with a high exposure to HIV media communication programmes (67.4%). The test of association between condom use and the sociodemographic variables show that, except for knowledge of transmission and status, all the other variables were statistically significant in their association (Table 1). Having multiple sexual partners was more prevalent among respondents aged 22-24 (17.2%), male (24.5%), who started having sex before the age of 16 (19.6%), from medium socioeconomic background (19.3%), living in

formal urban settlements (18.9%) and resident in Free State province (26.6%). It was also higher among those who did not know their HIV status (20.2%) and curiously, among respondents with the highest exposure to HCP (20.9%). However, the associations were not statistically significant with age, employment status, education, knowledge of HIV transmission and exposure to HCP.

Media exposure and condom use

Among the females, respondents who had no exposure to HIV media communication programmes (HCP) were found to be more likely to use condom (odds ratio: 4.19, $P < 0.05$), relative to those with a high HCP exposure. The likelihood was higher than for those with low HCP exposure (OR: 3.26, $P < 0.05$). In the male model, respondents with medium HCP exposure were less likely to use condom (OR: 0.23, $P < 0.05$). All other categories in the female and male models of condom use at the unadjusted levels were not statistically significant. When the sociodemographic confounders were controlled for, as shown in Table 2, being aged between 16 and 18, living in Gauteng, Mpumalanga and North West provinces were significantly associated with lower odds of condom use among female respondents while being married and living with partner, sexual debut before age 16, and belonging to the medium socioeconomic class were significantly associated with higher odds of condom use among the females. Among the males, in the adjusted model, age 19-21 was statistically significant in lowering the odds of using condom while sex debut at less than 16 and between 18-19, and living in informal urban settlements increased the odds of condom use. At the adjusted levels, no and low HCP exposure among the females were still statistically significant in predicting higher odds of condom use while medium HCP exposure among the males lowered the odds of condom use significantly.

Table 2: Odds ratios from logistic regression analyses of predictors of condom use and multiple sexual partners controlling for media communication programme in South Africa

Model Predictors	Condom Use		Multiple Sexual Partners					
	Female Unadjusted	Adjusted	Male Unadjusted	Adjusted	Female Unadjusted	Adjusted	Male Unadjusted	Adjusted
Age								
16-18		0.54*		0.82		1.63		2.80**
19-21		0.79		0.67*		1.12		1.29
22-24		RC		RC		RC		RC
Marital Status								
Single		1.30		0.78		0.25		1.13
Married, Living Apart		2.68		8.69		0.18		9.65
Married, Living with Partner		7.50**		5.06		6.13		3.39
Unmarried, Cohabiting		2.11		1.20		0.22		2.41
Divorced/Widow		1.48		0.11		8.81		0.10
Others		RC		RC		RC		RC
Employment Status								
Student		0.33		7.40		6.56**		0.13
Employed		0.55		8.35		4.51*		0.09
Unemployed		0.50		9.87		6.43**		0.11
Others		RC		RC		RC		RC
Sex Debut								
<16 years		2.27**		3.43**		0.08**		0.28*
16-17 years		1.49		1.97		0.11**		0.19**
18-19 years		1.21		2.65**		0.22*		0.34*
20+		RC		RC		RC		RC
Education								
None		0.48		8.64		0.14		7.42
Primary		0.13		0.39		0.12		6.51
Grade 11		0.10		0.21		0.11		0.15
Matric		0.08		0.14		0.09		0.14
Tertiary		0.09		0.16		0.14		1.23
Others		RC		RC		RC		RC
Socioeconomic Status								
Low		1.38		1.31		1.23		0.48**
Medium		1.43*		0.95		0.84		0.39**
High		RC		RC		RC		RC
Place of Residence								
Rural		1.25		1.66		1.64		1.55
Peri-Urban		1.00		1.01		2.16		1.75
Urban Informal		0.90		1.53*		1.05		1.14
Urban Formal		RC		RC		RC		RC
Province								
Eastern Cape		0.73		0.91		1.73		2.17
Free State		0.56		1.13		0.25**		0.60
Gauteng		0.52**		0.82		0.44		0.66
Kwazulu Natal		0.39**		0.91		0.50		1.36
Limpopo		0.71		0.89		0.86		1.26
Mpumalanga		0.44**		1.02		1.07		2.61
Northern Cape		0.82		2.24		0.36		0.55
North West		0.30**		0.51		0.62		0.72
Western Cape		RC		RC		RC		RC
HCP Exposure								
None	4.19*	3.02*	0.59	0.51	4.10*	1.63	2.61	2.60
Low	3.26*	2.80*	0.33	0.31	1.98	0.99	1.30	1.28
Medium	2.42	2.67	0.21*	0.23*	1.91	1.19	1.22	1.45
High	RC	RC	RC	RC	RC	RC	RC	RC

RC – Reference Category, *Significant at P < 0.05, **Significant at P < 0.01

Media exposure and multiple sexual partners

Having no exposure to any HIV media communication programme was four times more likely to predict having multiple sexual partners among the females (OR: 4.10, $P < 0.05$) but it had no statistical significance in predicting having multiple sexual partners among the male respondents. When other sociodemographic variables were controlled for in the models (Table 2), employment status were found to increase the odds of having multiple sexual partners among the females. Female students and unemployed females were six times more likely to have multiple sexual partners while employed females were four times more likely. Age at first sex and being resident in the Free State province of South Africa lowered the odds of having multiple sexual partners. In the adjusted male model, being aged 16-18 was statistically significant in increasing the odds of having multiple sexual partners. Age at first sex and socioeconomic status lowered the odds of having multiple sexual partners among the males. In the adjusted models, exposure to HIV media communication programmes did not significantly predict having multiple sexual partners among both the female and male respondents.

Discussion

Exposure to HIV media campaign programmes is expected to increase knowledge of HIV transmission and its prevention through increased status testing and practicing of safe sexual behaviour⁹. A number of studies have corroborated this^{6,7,12,19,20}. Although 89.7% of the respondents in this study were exposed to at least one form of media communication on HIV, the fact that 57.1% were only exposed to between 1 and 6 of the 19 platforms suggests that the coverage of the media campaigns may actually not be as widespread as believed. This relatively low exposure is reflected in the knowledge of HIV transmission among the respondents and may also underlie why the campaigns did not significantly influence condom use and multiple sexual partnerships among youths in South Africa as found in this study. As shown from the findings in this study, 62.2% of the youths had low knowledge of HIV transmission, and even though more than 68% of them were aware of their HIV status, less than 50% of them used condoms in

their last sexual intercourse with their partners, and 12.6% had multiple sexual partners. The low knowledge of HIV transmission further confirms a United Nations Population Fund's report that only about 30% of males and 27% of females aged between 15 and 24 years in South Africa can correctly identify ways to prevent HIV transmission and be in a position to reject major local misconceptions about the transmission of HIV in the country²¹.

With media exposure being associated with increased odds of condom use among female youths with little or no knowledge of such media exposure; lower odds of condom use among male youths with a medium knowledge of exposure; and remaining insignificant in other categories, it implies that HCP exposure is not a significant driver of behavioural change among South African youths, at least from this study. These findings differ from the dominant views on the relationship between HCP exposure and condom use in other studies^{12,22-25}. Our findings are, however, similar to those of Bertrand *et al*³, Keatings *et al*²⁶ and Camacho-Gonzalez *et al*²⁷. Camacho-Gonzalez *et al*²⁷ in particular argued that exposure to the social media has negative consequences by promoting the practice of HIV risk behaviour. Apart from also being associated with increased odds of having multiple sexual partners among youths with no exposure to the media campaigns, HCP did not record any significant relationship with multiple sexual partnerships among the youths of either sex at both the unadjusted and adjusted levels in this study. These findings are as found in other similar studies^{12,27}.

When the outcome variables were contextualized, more males used condoms and had multiple sexual partners than females. Youths aged 16-18, who were divorced or widowed, from households with high socioeconomic status, lived in formal urban settlements and in Gauteng and Kwazulu Natal provinces used condoms more. The prevalence of multiple sexual partners was highest among youths aged 22-24, who were divorced/widowed, had early sexual debut (before age 16), from households with medium socioeconomic status, lived in formal urban settlements and in Free State province. These sociodemographic attributes were also found to influence condom use and multiple sexual partnerships when the regression models were adjusted for the relationship between HCP and the

outcome variables. Age and province of residence were found to lower the odds of using condom among females while only age mattered for lowering the odds among males. Being married and living with partner, age at first sex and socioeconomic status increased the odds of condom use among the females whereas age at first sex and whether resident in urban or rural area increased the odds among males. Age was found to increase the odds of having multiple sexual partners among males aged 16-18 while employment status had the same influence among females. Sex debut lowered the odds of multiple sexual partnership among both sexes. Studies have also shown that these variables are related to HIV risk behaviour^{15-18,28-35}, that males are more likely to have multiple sexual partners than females^{18,28}, and that the odds of HIV transmission are lower among married females³³⁻³⁵ as found in this study. Unlike the findings here, however, some other studies concluded that early sexual debut was associated with higher odds of HIV risk behavior^{16,34}.

Conclusion

HIV media communication programmes are meant to increase the level of awareness about the disease that ravages the whole world but with the bulk of its prevalence in sub-Saharan Africa. The increased awareness is expected to drive a behavioural change that would see an upsurge in the use of condom and a reduction in multiple sexual partnerships, the duo of which are largely implicated in the transmission of the disease. Using the Third National Communications Survey (NCS) in South Africa, this study investigated how exposure to these media programmes has affected condom use and the practice of having multiple sexual partners among youth in South Africa. The findings show that exposure to these programmes was low among the youths and its impacts on HIV transmission risk behaviours among the cohort is statistically negligible. To enhance the effectiveness of these communication programmes and reduce HIV transmission risk behaviour among South African youths, tailor-made programmes to suit the needs of specific sociodemographic groups, rather than a general communication programme, should be adopted.

Contribution of Authors

COO conceived and designed the study, NM and YA collected and analyzed the data and wrote the manuscript. All authors read and approved the final manuscript.

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