



EXPLORING THE HEALTH DIFFERENCES BETWEEN WOMEN RAPED AND WOMEN NOT RAPED: ANALYSIS OF BASELINE DATA FROM THE SOUTH AFRICAN RAPE IMPACT COHORT EVALUATION (RICE) STUDY

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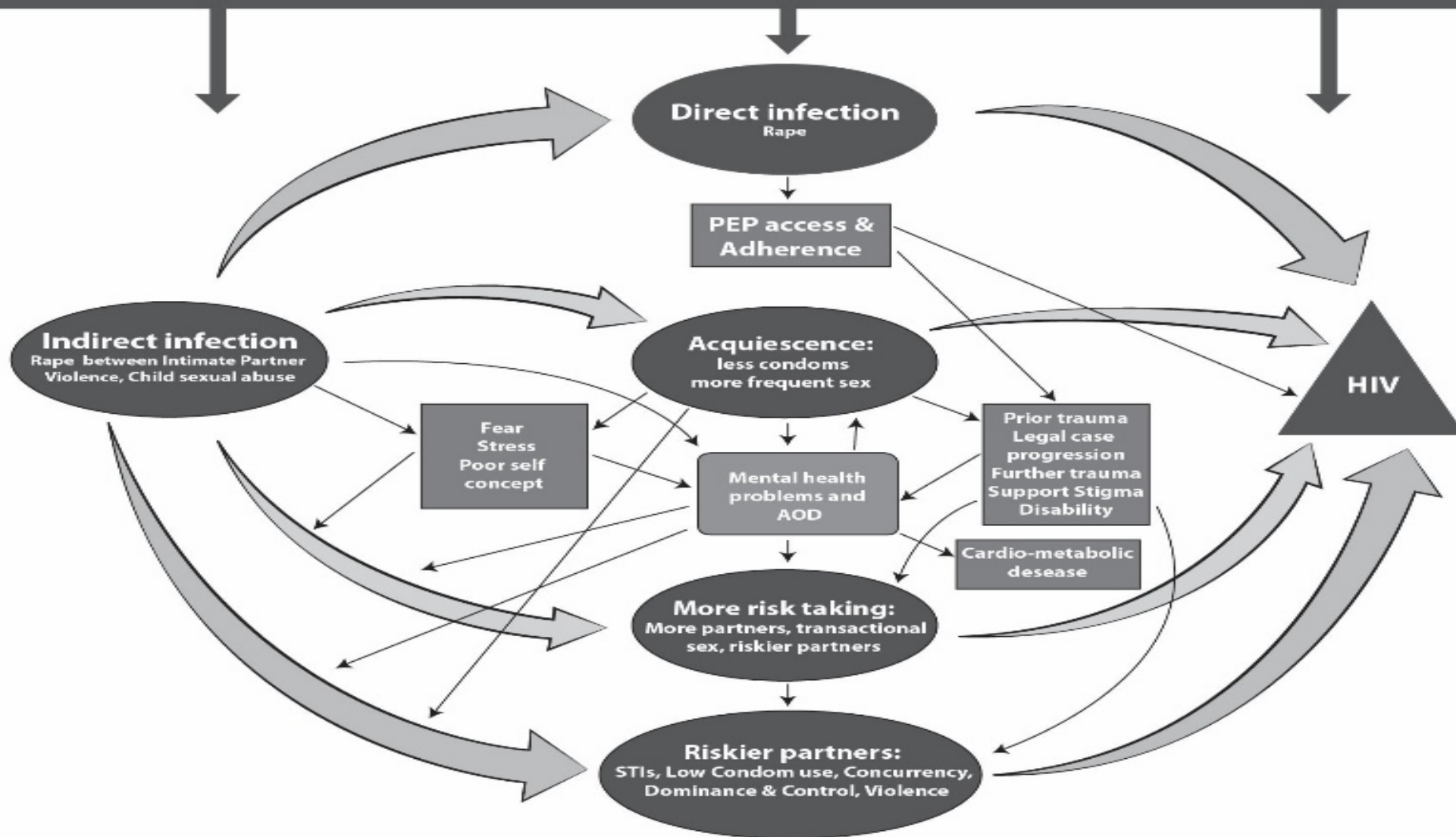


INTRODUCTION

- Post-rape HIV acquisition is a huge concern in settings with high prevalence of both HIV and sexual violence.
- Systematic reviews revealed limited data to quantify the health burden.
- The pathways to post-rape HIV acquisition and health outcomes can only be adequately explored in longitudinal designs studies with biomarkers.

Theoretical model of pathways to HIV post rape

Social Norms, Gender Hierachy and Inequalities



RICE STUDY AIMS

Primary Aim:

- To determine the incidence and attributable burden of HIV acquisition in women up to 24 months (or more) post-rape and compare these to a cohort of women who have not been raped.

Secondary Aims

- To determine the incidence, attributable burden and recovery rates of physical and mental health problems that may enhance HIV risk at 3, 6, 9, 12, 18 and 24 months.
- To determine individual, relational, social and criminal justice risk for health problems at the different time points that may be HIV risk factors.
- To estimate the relative importance of the different hypothesised pathways to HIV acquisition.

SECONDARY AIMS

- To determine the impact of rape on HIV positive victims' ability to link to HIV care and retention in treatment and their sexual risk taking behaviour.
- To qualitative explore the above aims to enhance the quantitative analysis and also to explore the experiences of participating in the RICE study amongst both the rape exposed and non-exposed women.

Related to the neuro-endocrine system

- To determine the incidence and attributable burden of metabolic syndrome risk factors, (cardiovascular disease hypertension and diabetes) comparing rape-exposed and unexposed women.
- To evaluate changes in cortisol levels and other steroid hormones over time to evaluate the stress-response of women before and after rape.
- To investigate genetic and epigenetic factors as participating biomarkers in the etiology and trajectory of PTSD among rape-exposed women.
- To look at the role of adiponectin in the development of PTSD

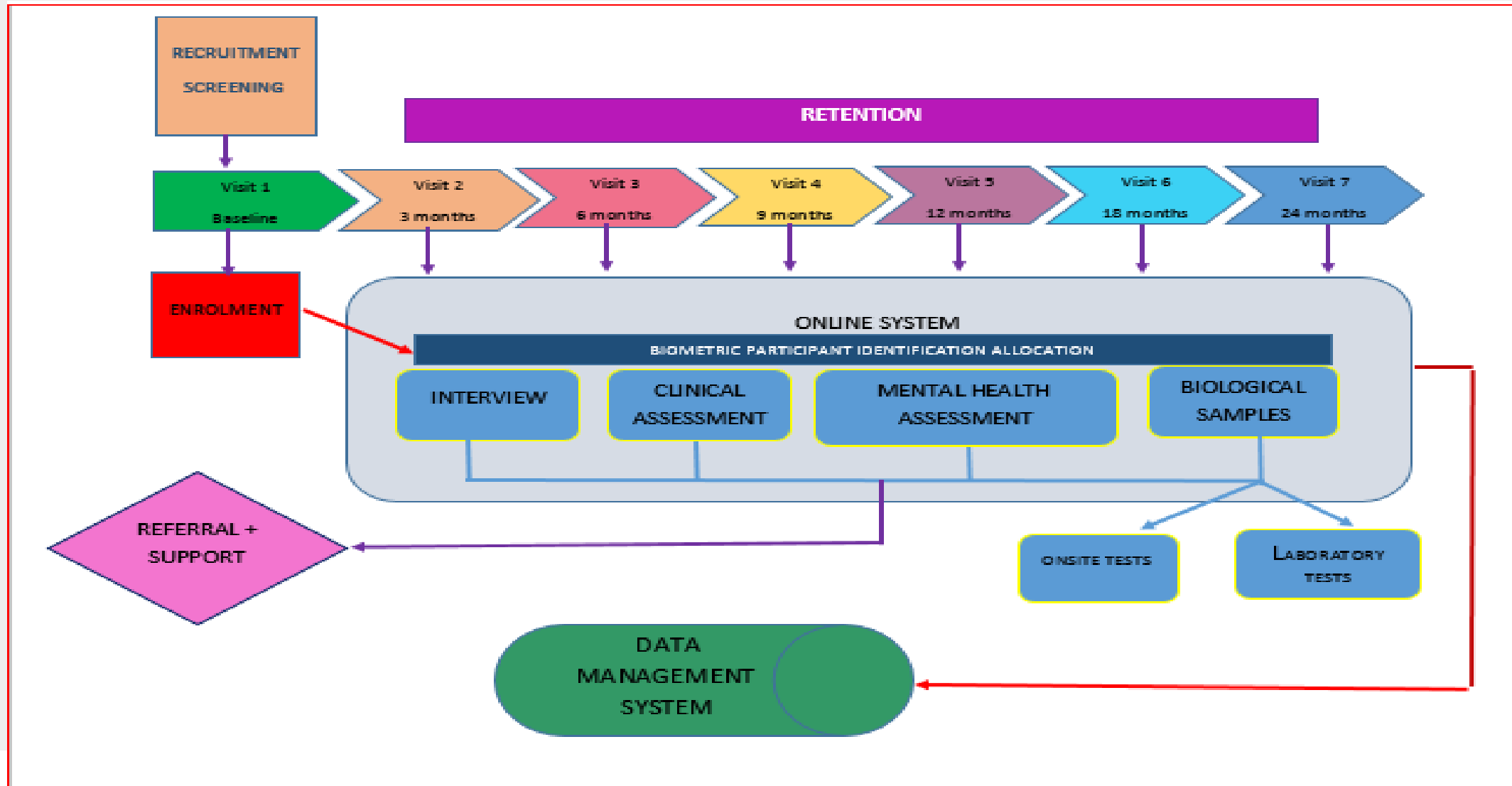
Design

- Comparative cohort design- with 24 month follow-up (36 months for some)
- Women aged 16- 40 years
- Durban – South Africa
- Cohort of 1008 rape survivors and a cohort of 1008 women attending family planning services – matched for age (sample based on main aim)
- Data collection at 3,6, 9, 12,18,24 months
- We collect data on known risk factors including mental health status and biomarkers for HIV, STIs, pregnancy & cardio-metabolic risks
- Data on rape event not collected at baseline
- Exclusion
 - Baseline interview not able to take place within **20 days** post rape
 - More than 14 weeks pregnant
 - Not involve in another study/trial
 - Among control cohort - no sexual violence

RICE : ASSESSMENTS

	Baseline	3 months	6 months	9 months	12 months	18 months	24 months
Biometrics	X	X	X	X	X	X	X
Clinical assessment	X	X	X	X	X	X	X
Mental health assessment (MINI)	X	X	X	X	X	X	X
HIV and trauma counselling	X	X	X	X	X	X	X
Laboratory evaluations							
HIV rapid test and ELISA	X	X	X	X	X	X	X
Pregnancy test	X	X	X	X	X	X	X
Trichomonas swab	X	X	X	X	X	X	X
HSV2	X	X	X	X	X	X	X
Glucose/lipid panels CRP ultrasensitive (cardiac), Gamma-GT, ALT(SGPT), AST(SGOT), creatinine,	X			X			X
Cortisol (hair sample)	X	X	X	X	X		
Genetic and epigenetic tests	X	X	X	X	X	X	X
VIROLOGY (HIV POSITIVE)							
Viral load and CD4	X		X		X		X
p-antigen 24 (sero-converted)	X	X	X	X	X	X	X
Storage							
Plasma	X	X	X	X	X	X	X
Serum	X	X	X	X	X	X	X

RICE STUDY FLOW



RICE TO DATE

- We started pilot in October 2014
- In July 2017 we have enrolled:
 - Rape exposed participants = 609
 - Non-rape exposed participants = 740
- Follow-up interviews
- Active retention activities



N = 1349

SOCIO-DEMOGRAPHICS (N = 1349)

Variables	Rape exposed n=609	Non-rape exposed n=740	P value
Mean age	24.8	25.5	0.02
Level of education <ul style="list-style-type: none"> • Grade 1-10 • > Grade 10 	20.4% 79.6%	15.9% 84.1%	0.03
Employed (full/part/self)	23.5%	12.3%	0.00
Child support grant	27.3%	37.0%	0.00
People in home sometimes/often go without food	21.8%	19.2%	0.22
Not in a current relationship	22.7%	14.5%	0.00

CHILDHOOD EXPERIENCES

	Rape exposed n=609 %	Non-rape exposed n=740 %	Odds ratio	<i>P</i> value
Childhood trauma scale: mean (14 items: higher score > trauma)	16.13	15.63	1.07	0.00
Witness parental abuse	12.3%	9.2%	1.38	0.64
Neglect	36.6%	31.1%	1.28	0.03
Physical abuse as a child	35.1%	35.7%	0.97	0.83
Sexual abuse as a child	14.9%	6.4%	2.59	0.00

Health assessment/ Reproductive health

	Rape exposed n=609 %	Non-rape exposed n=740 %	Odds ratio	<i>P</i> value
Alcohol use	57.6	46.4	1.57	0.00
Drug use	4.4	2.4	1.86	0.04
Tobacco use	13.3	10.7	1.28	0.13
Use contraceptives currently	61.5	68.2	.72	0.01
Ever pregnant	76.0	78.4	0.82	0.29
Ever abortion	3.9	1.8	2.24	0.03
Ever miscarriage	19.7	13.4	1.59	0.00
Ever STI (discharge/ulcer)	45.5	38.2	1.34	0.00
Trichomonas positive (vaginal swab)	3.6	4.1	.88	0.67

METABOLIC SYNDROME MARKERS

	Rape exposed n=609 mean	Non-rape exposed n=740 mean	p value
BMI mean	25.9	27.7	0.00
Systolic (mean)	104	105	0.00
Diastolic (mean)	69.9	71.5	0.00
Heart rate (mean)	73.6	75.2	0.00
HbA1c mmol/mol (normal range 3-6 mmol/mol)	5.39	5.32	0.01
HDL (good) Cholesterol mg/dl (normal range : 0.9-1.6/mg/dl)	1.15	1.21	0.00
LDH (bad) Cholesterol mg/dl (normal range 2.6-4.1/mg/dl)	2.28	2.18	0.01

HIV & HIV risk behaviour

	Rape exposed n=609 %	Non-rape exposed n=740 %	<i>P</i> value
HIV positive	50.9	42.0	0.00
HSV2 positive (herpes simplex virus)	74.2	68.9	0.03
Transactional sex main partner	12.3	10.6	0.35
Transactional sex casual partner	10.6	8.8	0.28
Any transactional sex	15.4	13.0	0.19
Partner definitely has other partners	22.0	20.5	0.44
Woman has other partners	8.4	12.3	0.02
Age at 1 st sex 16 years or less	32.0	20.4	0.00
First sex was rape/forced/persuaded	12.8	6.5	0.00

INTIMATE PARTNER VIOLENCE

	Rape exposed n=609 %	Non-rape exposed n=740 %	<i>P</i> value
Ever Physical IPV	54.1	45.8	0.03
Emotional IPV	50.4	42.4	0.04
Economic IPV	20.9	16.1	0.02
Sexual IPV	21.3	12.9	0.00
Ever non-partner sexual violence	30.2	0	0,00

Mental health

	Alpha	Rape exposed n=609 Mean	Non-rape exposed n=740 Mean	Odds ratio	<i>P</i> value
PTSD (Davidson Trauma scale: symptoms past week (30 items: coded 0-4) <u>High score = PTSD symptomology</u>	0.95	72.1	13.1		
Depression : CESD (past week) (20 items: coded 0-3) <u>High score = depression symptomology</u>	0.92	29.9	12.9	1.13	0.00
Perceived stress scale (10 items: codes 1-4 * reverse scores) <u>High score = high stress</u>	0.84	23.5	21.6	1.06	0.00
Social Support scale (12 Items: codes 1-4) <u>Low score = high support</u>	0.88	25.3	25.0	1.01	0.33
Resilience (25 items: Codes 1-4: <u>Low score = high resilience</u>)	0.89	50.7	49.6	1.03	0.00
Previous Trauma scale (Polytrauma) (12 items including sexual assault: YES /NO)		1.8	1.2	1.26	0.00

HIV positives in care (n=621)

	Rape exposed N=310 5%	Non-rape exposed N=311 42%	Odds Ratio	P value
Not in HIV care	24.5	10.3	2.83	0.00
On ARVs	39.4	45.7	.77	0.15
Missed ARV in last week	32.4	14.7	2.7	0.00
Status disclosed to others	73.6	70.7	1.15	0.43
CD4 count (mean)				
	509.0	523.8	.99	0.53
Viral Load				
Mean RNA Copies/ml	4334.5	6241.2	.99	0.49
Undetected levels (<50)	71.9	75.5		0.40
50-399	9.59	10.1		
400-10 000	11.0	5.7		
> 10 000	7.5	8.8		

CONCLUSION

- Preliminary analysis of baseline data shows some differences between the two exposure groups
 - Risk factors for HIV
 - Impact on retention in care among HIV positive
- Next
 - Manage challenges
 - Complete recruitment
 - Maintain good retention

Protocol accepted by BMJ Open to published before Dec 2017



The RICE team

