

Relationship Dynamics and Experiences of Expedited Partner Therapy Among Adolescent Girls and
Young Women in Johannesburg, South Africa

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Abstract

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Background: Adolescent girls and young women (AGYW) are disproportionately impacted by sexually transmitted infections (STIs). We evaluated associations between relationship dynamics and expedited partner therapy (EPT) acceptance and delivery, and delivery experiences, among AGYW diagnosed with an STI and participating in a prospective cohort study (ARISE).

Setting: Participants attending a research clinic in Johannesburg, South Africa, were enrolled between February 2022 and December 2023.

Methods: Cisgender AGYW (aged 18-25) diagnosed with an STI at enrollment, were provided STI treatment, completed the HEAlthy Relationship Assessment Tool (HEART, an index developed for PrEP that measures relationship dynamics across three domains - traditional values, partner support, and partner abuse and control), and were offered EPT or partner notification slips (standard of care). We used modified Poisson regression to assess associations between HEART domain scores and initial EPT acceptance and delivery, and characterized EPT delivery experiences.

Results: Among 305 participants enrolled, 257 reported a primary partner and returned for the first follow-up visit. Prevalence of EPT acceptance (244/257, 95%) and delivery (232/244, 95%) were high. In relationships characterized by high partner abuse and control, there was a lower likelihood of EPT acceptance (89% among participants with a high score in this domain versus 97% among those with a low score; PR 0.91 [95% CI 0.84, 0.99]). Other domains were not associated with EPT acceptance or delivery. Some participants reported angry (19/232, 8%) or violent (1/232, <1%) partner responses.

Conclusion: Initial EPT acceptance and delivery were high. Participants who indicated partner abuse and control were less likely to accept EPT. Intimate partner violence was reported infrequently. The HEART index helped guide EPT conversations and may have applicability beyond PrEP.

INTRODUCTION

Bacterial sexually transmitted infections (STIs), including *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis* are a significant threat to global public health¹ and to individual physical, psychological, and social well-being.² In addition to acute infection and associated stigma, these STIs can cause long-term sequelae, including chronic pelvic pain, infertility, ectopic pregnancy, preterm birth, neonatal infection, and increased risk of HIV acquisition.^{3–5} South Africa has a high national prevalence of both bacterial STIs^{6,7} and HIV,⁸ with highest STI prevalence among young women.^{7,9}

For STI management in South Africa and many other low- and middle-income countries (LMICs), lack of widespread access to diagnostic testing means that care is based on World Health Organization (WHO) syndromic management guidelines. Syndromic management uses empiric antibiotic treatment based on likely STI diagnosis without confirmatory testing and asks index patients to notify partners so that they can seek treatment as well.^{10,11} Syndromic management has several limitations: it does not treat asymptomatic STIs, overtreats with multiple antibiotics for infections that might not be present, and has low rates of partner treatment.¹² In the absence of partner treatment, STIs remain prevalent in sexual networks and treated index patients are potentially at risk of reinfection, making treatment of sexual partners an essential component of STI management. People assigned female sex at birth are at a disproportionately high risk of STI-related sequelae due to higher STI prevalence^{7,9} and a greater proportion of asymptomatic infection^{13,14} which goes undiagnosed and untreated in settings where syndromic management is the standard of care.

In high-income countries, expedited partner therapy (EPT) is increasingly being implemented^{15–19} as a means to improve partner treatment rates for the common bacterial STIs (*C. trachomatis*, *N. gonorrhoeae*, *T. vaginalis*). As access to STI testing increases, including the development of point-of-care STI tests,²⁰ EPT could also soon be an option in LMICs. However, there is limited evidence for the feasibility and acceptability of EPT in LMICs, a knowledge gap that an ongoing prospective cohort study based in South Africa, ARISE (Acceptability Research on Integrated point-of-care STI testing and EPT), is seeking to address.

For EPT to successfully treat STIs in sexual partners, index patients are required to disclose their STI status and deliver the medication to their partners. To mitigate the risk that STI disclosure triggers intimate partner violence (IPV) or other social harms, it is important to understand relationship and power dynamics. For women in South Africa, the lifetime prevalence of experiencing IPV is in line with the global average (24%).²¹ However, among adolescent girls and young women (AGYW) living in Gauteng province, who make up the eligible population for the ARISE study, lifetime IPV prevalence has been estimated to be as high as 45%.²² Screening tools exploring relationship dynamics may help determine which individuals would be most likely to benefit from EPT and support women in decision-making and communication around EPT use. The HEAlthy Relationship Assessment Tool (HEART), which was developed to guide counseling around communication and disclosure among AGYW using pre-exposure prophylaxis (PrEP), is one such screening option.^{23,24} This analysis evaluated the implementation of HEART within the ARISE study. We describe relationship dynamics between AGYW enrolled in the ARISE cohort and their primary sexual partner, evaluate associations between these dynamics and EPT acceptance and delivery, and characterize the frequency of EPT delivery experiences, including IPV.

METHODS

Study design

This was a secondary analysis of data from ARISE, an ongoing prospective cohort study evaluating STI testing and EPT for the management of STIs among AGYW in Johannesburg, South Africa. AGYW were eligible to participate in ARISE if they were aged 16-25 years, cisgender, sexually active, non-pregnant, HIV-seronegative, continuing or initiating oral PrEP for HIV prevention, and had an STI diagnosis (*C. trachomatis*, *N. gonorrhoeae*, and/or *T. vaginalis*) based on diagnostic testing at the study enrollment visit. Participants were enrolled between February 2022 and December 2023. Participants received STI treatment and were offered a choice of EPT or partner notification slips (standard of care). STI treatment and EPT regimens were based on South African, Centers for Disease Control and Prevention, and WHO

guidelines.^{10,11,25} Follow-up was for one year, during which participants attended a test of cure (TOC) visit one month (target 28 days, window 21-35 days) after enrollment, quarterly visits for repeat STI testing, and additional TOC visits one month after any quarterly visit at which an STI was diagnosed (**Figure 1**). All participants provided written informed consent. The ARISE study was approved by the human subjects research committees at the University of the Witwatersrand (Johannesburg, Gauteng, South Africa) and the University of Washington (Seattle, WA, United States).

Data collection

At enrollment, following a positive STI test to confirm eligibility, participants were asked about sociodemographic characteristics and completed the HEART index to assess dynamics in the relationship with their primary partner.^{23,24} HEART assesses relationship dynamics across three domains – *traditional values* (9 questions that explore patriarchal norms), *partner support* (6 questions about support and harmony within the relationship), and *partner abuse and control* (7 questions assessing partner behaviors that cause physical or psychological harm) (**Table 1**)²⁶. ARISE used an abridged HEART index which omitted two PrEP-specific domains (*partner resistance to HIV prevention*, and *HIV prevention readiness*) that are part of a longer version of the index. Each question is phrased as a statement to which the respondent uses a 6-point Likert scale to indicate their level of agreement or disagreement. Example statements include: “*I think that a man should have the final say in all family matters*” for *traditional values*; “*My partner is as committed as I am to our relationship*” for *partner support*; and “*I feel frightened by what my partner says or does*” for *partner abuse and control*. For all *traditional values* and *partner abuse and control* questions, and two of the six *partner support* questions, scores of 1-3 indicate disagreement (“*a lot*”, “*some*”, “*little*”) and scores of 4-6 indicate agreement (“*little*”, “*some*”, “*a lot*”). For the remaining *partner support* questions, the framing of the statement reverses the Likert scale, such that scores of 6-4 indicate disagreement (“*a lot*”, “*some*”, “*little*”) and scores of 3-1 indicate agreement (“*little*”, “*some*”, “*a lot*”). An example of a *partner support* statement that uses the reversed scale is: “*In general, my relationship has a lot of tension*”. For all three domains, higher scores are indicative of stronger dynamics within that domain, i.e. stronger *traditional values*, stronger *partner support*, stronger *partner*

abuse and control. ARISE participants who were experiencing IPV, or who were determined by HEART screening to be at high risk of IPV, received counseling about responding to IPV and were not offered EPT. Participants who screened as being at low risk of IPV were offered EPT and received counseling about STI disclosure and EPT delivery. At the TOC visit, participants self-reported whether they had delivered EPT and any social benefits or harms they had experienced related to study participation. Those who had delivered EPT responded to a structured questionnaire about their delivery experiences.

Statistical analysis

This analysis used data from enrollment through to the first TOC visit. ARISE participants were eligible for inclusion in this analysis if they reported a primary partner at enrollment, attended the first TOC visit, and had data available on the exposure (relationship dynamics with primary partner, as defined by HEART score) and outcomes (EPT acceptance and EPT delivery, both to primary partner). Participants were also offered EPT for non-primary partners. However, the HEART index applies only to relationship dynamics between a respondent and her primary partner, therefore, this analysis focuses on EPT experiences related to primary partners only.

The exposure of interest, relationship dynamics, was self-reported based on responses to the HEART index. Continuous scores were strongly skewed in all three domains, with most participants reporting low *traditional values* and *partner abuse and control*, and high *partner support*. Informed by these distributions, binary HEART domain variables were defined based on the count of questions scoring ≥ 4 on the Likert scale (i.e. agreement with *traditional values*, *partner abuse and control*, and the subset of *partner support* statements where agreement indicated high *partner support*; disagreement with the remaining *partner support* statements). In preparation for sensitivity analyses, three-level categorical versions of the HEART domain variables were also defined. Cut points for binary and three-level categorical HEART domain variables are summarized in **Table 2**. The first outcome of interest, prevalence of EPT acceptance at enrollment, was based on whether EPT was dispensed. The second outcome of interest, prevalence of EPT delivery, was based on participants' self-report at the TOC visit.

Descriptive statistics were calculated to summarize sociodemographic characteristics overall and stratified by HEART score category. Poisson regression with log link and robust standard errors was used to calculate prevalence ratios (PRs) for associations between binary and continuous versions of the three HEART domain variables (*traditional values*, *partner support*, *partner abuse and control*) and EPT acceptance, and between HEART domain variables and EPT delivery. Based on the characterization of healthier relationship dynamics and largest group sizes, a low score was selected as the reference group for *traditional values* and *partner abuse and control*, and a high score as the reference group for *partner support*. Informed by our conceptual model, which included variables that have been hypothesized or demonstrated to be associated with EPT acceptance or delivery and IPV (**Figure 2**), the following variables were evaluated as potential confounders: age, education, number of non-primary partners in the last 3 months, primary partner being ≥ 5 years older, duration of relationship with primary partner, type of partner, partner living with the participant, and partner being a source of income for the participant.^{22,27–35} When added to the regression model, none of the evaluated covariates changed the estimated PR by $>10\%$, therefore our unadjusted model represents the final model in each analysis. A sensitivity analysis was performed to evaluate the association between HEART domain scores parameterized as three-level categorical variables and EPT acceptance and delivery.

Finally, to characterize EPT delivery experiences, descriptive statistics, overall and stratified by HEART score, were calculated for responses to the following questions at the TOC visit: (1) “*How did you feel when you talked with your primary partner about EPT?*”; (2) “*How did your primary partner respond when you offered him EPT?*”; (3) “*How has delivering EPT to your primary partner impacted your relationship?*”; (4) “*How has delivering EPT affected the pleasure in your sexual relationship with your primary partner?*”. Angry and/or violent partner reactions reported in response to question (2), were summed with any additional angry and/or violent partner reactions that participants had reported as a social harm related to study participation.

Analyses were conducted with R Version 4.3.2 (R Core Team, Vienna, Austria) using RStudio Version 2023.12.0 (Posit Software, PBC, Boston, MA, United States). Statistical significance was based on a two-sided alpha of 0.05.

RESULTS

Description of participants

Among 305 AGYW enrolled in ARISE, 3 did not have a primary partner at the time of the enrollment visit, 32 did not attend the TOC visit, and 13 attended the TOC visit but had missing data on EPT delivery, leaving 257 AGYW eligible for inclusion in this analysis (**Figure 3**). Participant sociodemographic characteristics are summarized overall and by binary score for each HEART domain in **Table 3**. Median participant age was 21 years [IQR: 20, 23], 72% had completed secondary education, and 42% had multiple sexual partners. Most primary partners were boyfriends (96%) and did not live with the participant (96%). Median relationship duration was 24 months [IQR: 10, 36]. Almost half (44%) of participants reported that their primary partner was ≥ 5 years older, and only 17% counted their partner as a source of income. Based on the HEART index, 70% of participants reported low *traditional values*, 54% reported high *partner support*, and 72% reported low *partner abuse and control*. There was minimal variation in sociodemographic characteristics by binary HEART domain score.

Associations between relationship dynamics and EPT acceptance and delivery

The overall prevalence of EPT acceptance and delivery was high: 95% (244/257) of participants accepted EPT; among those who accepted, 95% (232/244) of participants delivered EPT to their primary partner. Using binary HEART domain variables, a high *partner abuse and control* score was associated with a lower likelihood of EPT acceptance (89% for high versus 97% for low; PR 0.91 [95% CI 0.84, 0.99]); **Table 4**. A high *traditional values* score was associated with a higher likelihood of EPT delivery (99% for high versus 94% for low; PR 1.05 [95% CI 1.01, 1.11]). *Traditional values* and *partner support* scores

were not associated with EPT acceptance; *partner support* and *partner abuse and control* scores were not associated with EPT delivery. Using continuous HEART variables, there was no association between increasing HEART scores in each domain and EPT acceptance or delivery.

Experiences of EPT delivery to primary partner

For the 232 participants who delivered EPT to their primary partner, delivery experiences are summarized in **Table 5** and **Figure 4**. Delivery experiences were similar across groups defined by binary HEART domain score. When talking about EPT, most participants felt neutral (39%) and/or nervous (32%) and almost half of partners (47%) responded neutrally. The next most frequent partner responses were confusion (15%) and seeming relieved (12%).

Partner responses consistent with IPV were reported by 19 participants (8%), comprising 18 angry reactions, and one angry and violent reaction.

The majority of participants reported that delivering EPT to their primary partner had neither impacted the relationship (57%) nor affected sexual pleasure (59%). Among those who did report an impact on the relationship, this was most frequently “*made us closer*” (17%) or “*has impacted trust and respect*” (16%).

Sensitivity analysis

The impact of using three-level categorical versions of the HEART domain variables was explored in a sensitivity analysis. Sociodemographic characteristics (**Table 6**), associations between relationship dynamics and EPT acceptance and delivery (**Table 7, Figure 5**), and EPT delivery experiences (**Table 8**) were similar to the main analysis, although interpretation was limited by small cell counts for some levels (specifically, high *traditional values*, low *partner support*, and high *partner abuse and control*).

DISCUSSION

We evaluated the implementation of HEART as a screening tool to explore relationship dynamics among AGYW participating in ARISE, a cohort study assessing EPT in South Africa. The majority of participants reported relationship dynamics with their primary partner that were characterized by low *traditional values* and low *partner abuse and control*. Overall prevalences of EPT acceptance and delivery were high. High *partner abuse and control* score was negatively associated with EPT acceptance. Among participants who did accept EPT, there was no association between *partner abuse and control* score and EPT delivery. EPT delivery was positively associated with high scores in the *traditional values* domain. A small number of participants reported IPV in response to EPT delivery, largely anger and one instance of violence.

We applied the HEART index, which had been developed to guide PrEP counseling in a similar population,^{23,24} to the adjacent topic of STI disclosure and EPT. HEART helped assess relationship dynamics and informed counseling approaches to avoid EPT being dispensed to participants at increased risk of IPV, which is consistent with guidance in settings where EPT is part of the standard of care for STI treatment.^{18,19} The HEART index was particularly appropriate for use with ARISE participants because it was developed in the same study setting, informed by multiple existing IPV screening tools.³⁶ One HEART domain, *partner abuse and control*, was negatively associated with EPT acceptance. Once participants in relationships characterized by high *partner abuse and control* had declined to accept EPT, there was no association between this domain and subsequent EPT delivery. Implementation of HEART was feasible as part of the STI and EPT consultation, and it could have wider applicability beyond PrEP counseling.

The prevalence of EPT acceptance and delivery observed in this study was similar to that observed in two previous cohort studies that examined EPT for women in South Africa.^{27,28} In common with the ARISE study, both these studies were conducted in urban areas, included asymptomatic and symptomatic participants, and performed diagnostic testing for *C. trachomatis*, *N. gonorrhoeae*, and *T. vaginalis* to

determine eligibility for study enrollment and EPT. However, both studies recruited much smaller cohorts than ARISE. In the first study, undertaken by Garrett et al. in Durban, among 62 participants offered EPT for their primary partner, 87% accepted, 89% delivered by one week, and 98% delivered by six weeks.²⁸ The second study, undertaken by Young et al. in Gugulethu, Cape Town, did not disaggregate EPT acceptance and delivery by partner status as primary versus non-primary: among 106 participants with 116 partners, participants accepted EPT for 85% of partners and delivered EPT to 94% of partners by six weeks.²⁷ EPT acceptance and delivery rates were also similar in studies of EPT in other LMICs,^{29,32–34,37} with one exception: in a study among female sex workers in Uganda, prevalence of EPT acceptance was 50%, the study did not report EPT delivery.³¹

This analysis is the first to examine associations between relationship dynamics, as characterized by HEART score, and EPT acceptance and delivery. We found that 8% of participants reported partner anger and <1% reported partner violence in response to EPT delivery. Among two previous EPT studies in South Africa, the first reported that no participants experienced IPV in relation to EPT,²⁸ and the second did not explicitly report on IPV.²⁷ Similar to our findings, a study in Kenya reported no partner violence, but an 11% prevalence of partner anger in response to EPT delivery.³⁴ In the same study, among participants who did not accept EPT, 14.3% attributed this to fear of partner anger; no participants reported fear of violence as the reason for not accepting EPT, and no participants reported fear of anger or violence as the reason for not delivering EPT.³⁴ Other studies of EPT in LMICs have not explicitly reported IPV during follow-up but have reported whether a history of IPV influenced EPT acceptance and delivery decisions. In the only study to test this using a statistical analysis, there was no association between having experienced IPV in the last 12 months and EPT acceptance.³⁷ Three other studies noted experiences of individual participants: in one, a history of IPV was reported to have positively influenced one participant's decision to accept EPT,³⁰ whereas in another study previous IPV led to two participants choosing not to deliver EPT to their partners (this study did not distinguish between acceptance and delivery).²⁹ To our knowledge, no other studies of EPT in LMICs have reported whether study participants had a history of IPV in their relationships, nor have reported experiences of IPV during follow-up.^{27,31–33} That there are only sporadic reports of EPT-related IPV among participants in studies might be an artifact

of self-selection into study participation and EPT acceptance. Low IPV prevalence suggests that potential EPT users are appropriately choosing to accept or decline EPT according to what they feel to be safest within the context of their relationship. The HEART index, specifically the *partner abuse and control* domain, could be used to guide decisions about EPT dispensing, inform counseling around STI disclosure and EPT, and facilitate provision of support and resources to people experiencing IPV.

Strengths of our analysis include the largest sample size of any EPT study in an LMIC setting, the inclusion of asymptomatic and symptomatic participants, who might have different levels of STI awareness, and the focus on AGYW, who experience a high burden of STIs and would most stand to benefit from improved approaches to STI management. However, several limitations should be considered when interpreting the results. First, there was a risk of selection bias due to study eligibility criteria and self-selection into study participation. To be enrolled in the ARISE cohort, AGYW had to have a current STI diagnosis, be HIV-seronegative, be using or willing to use PrEP, and not be currently pregnant. Therefore, findings might not be generalizable to people of other ages, genders, and HIV- or pregnancy-statuses. Additionally, findings might not be generalizable to AGYW experiencing highly unhealthy relationship dynamics, due to them being disempowered from choosing to participate in a research study, or actively choosing not to participate due to concerns that STI disclosure and EPT could exacerbate such dynamics. Second, HEART score and EPT delivery were based on participant self-report (EPT acceptance was not self-reported), which risks social desirability bias whereby participants could be misclassified as experiencing falsely healthier relationship dynamics and/or falsely higher rates of EPT delivery. Third, the HEART index only measured relationship dynamics between a respondent and her primary partner. This limited the analysis to primary partners and we were not able to evaluate HEART as a screening tool for IPV risk in non-primary relationships nor analyze associations between non-primary relationship dynamics and EPT acceptance, delivery, and delivery experiences.

In conclusion, the HEART index, which was originally developed to facilitate PrEP counseling, was successfully implemented to screen for IPV and inform conversations about STI disclosure and EPT. With increasing access to point-of-care testing, and therefore decreasing reliance on syndromic STI

management in LMICs, future work should holistically assess the benefits and harms of EPT to inform approaches that minimize the physical, psychological, and social impacts of STIs and their management among AGYW.

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TABLES AND FIGURES

Table 1: Healthy Relationship Assessment Tool (HEART)

HEART Domain	Score					
	Disagree			Agree		
	A Lot	Some	Little	Little	Some	A Lot
Traditional Values						
1. I think that a woman cannot refuse to have sex with her husband.	1	2	3	4	5	6
2. I think that if a man has paid lobola for his wife, he owns her.	1	2	3	4	5	6
3. A woman should always listen and abide by the word of her husband without questions.	1	2	3	4	5	6
4. A man should have the final word about decisions in his home.	1	2	3	4	5	6
5. A real man produces a male child.	1	2	3	4	5	6
6. I think that if a man has paid lobola for his wife, she must have sex when he wants it.	1	2	3	4	5	6
7. I think that a man should have the final say in all family matters.	1	2	3	4	5	6
8. A woman should accept her partner's wishes - even when she disagrees - to keep the family together.	1	2	3	4	5	6
9. I only think I am attractive if other people think I am.	1	2	3	4	5	6
Partner Support						
1. My partner is as committed as I am to our relationship.	1	2	3	4	5	6
2. In general, my relationship has a lot of tension.	6	5	4	3	2	1
3. I feel trapped or stuck in our relationship.	6	5	4	3	2	1
4. Arguments with my partner result in me feeling down or bad about myself.	6	5	4	3	2	1
5. My partner does what he wants, even if I do not want him to.	6	5	4	3	2	1
6. I feel safe in my current relationship.	1	2	3	4	5	6
Partner Abuse and Control						
1. My partner slaps, hits, kicks, or pushes me.	1	2	3	4	5	6
2. My partner does things to scare or intimidate me on purpose.	1	2	3	4	5	6
3. My partner makes fun of me or humiliates me.	1	2	3	4	5	6
4. My partner makes most of the decisions about how the household finances are used.	1	2	3	4	5	6
5. I feel frightened by what my partner says or does.	1	2	3	4	5	6
6. I can't seem to make good decisions about my life.	1	2	3	4	5	6
7. I do not trust myself to make good decisions about my life.	1	2	3	4	5	6

Abbreviations: HEART, HEALThy Relationship Assessment Tool.

HEART score was used to characterize relationship dynamics. Categories were defined based on the count of questions scoring ≥ 4 in each domain. For binary variables, as used in the main analysis, cut points were: *traditional values* low=0, high=1-9; *partner support* low=0-5, high=6; *partner abuse and control* low=0, high=1-7. For three-level categorical variables, as used in a sensitivity analysis, cut points were: *traditional values* low=0, medium=1-4, high=5-9; *partner support* low=0-2, medium=3-5, high=6; *partner abuse and control* low=0, medium=1-3, high=4-7.

Table 2: Cut points used for HEART domain score variables

Variable	Count of Questions Scoring ≥ 4 In Each HEART Domain		
	Traditional Values	Partner Support	Partner Abuse and Control
Binary			
Low	0	0-5	0
High	1-9	6	1-7
Three-level categorical			
Low	0	0-2	0
Medium	1-4	3-5	1-3
High	5-9	6	4-7
Abbreviations: HEART, HEAlthy Relationship Assessment Tool.			

Table 3: Sociodemographic characteristics of ARISE participants included in analysis, overall and stratified by binary HEART domain score

Characteristic	Overall (N=257)	HEART Score by Domain ^a					
		Traditional Values		Partner Support		Partner Abuse and Control	
		Low (n=179)	High (n=78)	Low (n=118)	High (n=139)	Low (n=185)	High (n=72)
Age, years, median [IQR]	21.0 [20.0, 23.0]	21.0 [20.0, 23.0]	21.0 [20.0, 22.0]	21.0 [19.3, 22.0]	21.0 [20.0, 23.0]	21.0 [20.0, 23.0]	20.5 [19.8, 22.0]
Highest level of education, n (%)							
Primary school ^b	61 (24%)	41 (23%)	20 (26%)	30 (25%)	31 (22%)	45 (24%)	16 (22%)
Secondary school	184 (72%)	130 (73%)	54 (69%)	84 (71%)	100 (72%)	131 (71%)	53 (74%)
College or university	12 (5%)	8 (4%)	4 (5%)	4 (3%)	8 (6%)	9 (5%)	3 (4%)
Number of non-primary partners in last 3 months, n (%)							
0	149 (58%)	101 (56%)	48 (62%)	64 (54%)	85 (61%)	108 (58%)	41 (57%)
1	65 (25%)	47 (26%)	18 (23%)	33 (28%)	32 (23%)	47 (25%)	18 (25%)
2 or more	43 (17%)	31 (17%)	12 (15%)	21 (18%)	22 (16%)	30 (16%)	13 (18%)
Currently using contraception, n (%)	159 (62%)	108 (60%)	51 (65%)	72 (61%)	87 (63%)	114 (62%)	45 (62%)
Has ever had an STI, n (%)							
No	176 (68%)	127 (71%)	49 (63%)	75 (64%)	101 (73%)	133 (72%)	43 (60%)
Yes	53 (21%)	35 (20%)	18 (23%)	25 (21%)	28 (20%)	37 (20%)	16 (22%)
Not sure	28 (11%)	17 (9%)	11 (14%)	18 (15%)	10 (7%)	15 (8%)	13 (18%)
Age of primary partner, years^c, median [IQR]	25.0 [23.0, 27.0]	25.0 [23.0, 27.8]	25.0 [23.0, 27.0]	25.0 [23.0, 28.0]	25.0 [22.0, 27.0]	25.0 [23.0, 28.0]	24.0 [22.0, 26.5]
Primary partner ≥5 years older, n (%)^c	112 (44%)	76 (43%)	36 (46%)	56 (48%)	56 (40%)	83 (45%)	29 (41%)
Duration of relationship with primary partner, months, median [IQR]	24.0 [10.0, 36.0]	24.0 [10.0, 36.0]	24.0 [12.0, 36.0]	24.0 [12.0, 37.5]	24.0 [8.00, 36.0]	24.0 [10.0, 36.0]	24.0 [11.5, 48.0]
Type of relationship with primary partner, n (%)							
Husband	4 (2%)	3 (2%)	1 (1%)	2 (2%)	2 (1%)	3 (2%)	1 (1%)
Fiancé	3 (1%)	2 (1%)	1 (1%)	3 (3%)	0 (0%)	1 (1%)	2 (3%)
Boyfriend	246 (96%)	171 (96%)	75 (96%)	110 (93%)	136 (98%)	180 (97%)	66 (92%)
Casual/friend with benefits	4 (2%)	3 (2%)	1 (1%)	3 (3%)	1 (1%)	1 (1%)	3 (4%)
Living with partner, n (%)	10 (4%)	5 (3%)	5 (6%)	7 (6%)	3 (2%)	7 (4%)	3 (4%)
Partner as source of income, n (%)	44 (17%)	33 (18%)	11 (14%)	27 (23%)	17 (12%)	28 (15%)	16 (22%)

Abbreviations: HEART, HEAlthy Relationship Assessment Tool; IQR, interquartile range; STI, sexually transmitted infection.

a. Binary HEART score variable based on the count of questions scoring ≥4 in each domain, cut points: *traditional values* low=0, high=1-9; *partner support* low=0-5, high=6; *partner abuse and control* low=0, high=1-7.

b. Includes 1 participant who did not complete primary school.

c. Denominator N=256 due to missing n=1 (did not know age of primary partner).

Percentages may not total 100% due to rounding.

Table 4: Association between binary and continuous versions of HEART domain score, and EPT acceptance at enrollment, and EPT delivery to primary partner at one month

HEART Score by Domain ^a	EPT Acceptance (N=257)		EPT Delivery (N=244)	
	Prevalence, n/N (%) ^b	PR (95% CI)	Prevalence, n/N (%) ^c	PR (95% CI)
Traditional Values				
Binary				
Low	171/179 (96%)	Reference	160/171 (94%)	Reference
High	73/78 (94%)	0.98 (0.92, 1.05)	72/73 (99%)	1.05 (1.01, 1.11)
Continuous	244/257 (95%)	1.01 (1.00, 1.01)	232/244 (95%)	1.01 (1.00, 1.02)
Partner Support				
Binary				
Low	110/118 (93%)	0.97 (0.91, 1.03)	106/110 (96%)	1.03 (0.97, 1.08)
High	134/139 (96%)	Reference	126/134 (94%)	Reference
Continuous	244/257 (95%)	0.99 (0.97, 1.01)	232/244 (95%)	1.00 (0.98, 1.03)
Partner Abuse and Control				
Binary				
Low	180/185 (97%)	Reference	170/180 (94%)	Reference
High	64/72 (89%)	0.91 (0.84, 0.99)	62/64 (97%)	1.03 (0.97, 1.09)
Continuous	244/257 (95%)	0.98 (0.95, 1.01)	232/244 (95%)	1.01 (0.99, 1.03)

Abbreviations: EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; PR, prevalence ratio.

a. Binary HEART score variable based on the count of questions scoring ≥ 4 in each domain, cut points: *traditional values* low=0, high=1-9; *partner support* low=0-5, high=6; *partner abuse and control* low=0, high=1-7.

b. For EPT acceptance, denominator includes all participants included in analysis.

c. For EPT delivery, denominator includes only participants who accepted EPT.

Reference group low for *traditional values*, and *partner abuse and control*; for continuous version of these domains, PR represents change in likelihood of EPT acceptance for a 1 unit *increase* in score.

Reference group high for *partner support* domain; for continuous version of this domain, PR represents change in likelihood of EPT acceptance for a 1 unit *decrease* in score.

The following covariates were assessed as potential confounders of the association between relationship dynamics (measured by continuous, binary, and three-level categorical versions of HEART score in each domain) and EPT acceptance and EPT delivery: age; education; number of non-primary partners in last 3 months; primary partner ≥ 5 years older; duration of relationship with primary partner; type of partner; living with partner; partner as source of income. The addition of each variable, in turn, did not meaningfully affect the estimated PRs (defined as change in PR of $>10\%$) when added to the regression model. Since no confounders were identified, our unadjusted model represents the final model in each analysis.

PRs in bold are statistically significant at $p < 0.05$.

Table 5: Participant experiences of EPT delivery to primary partner, overall and stratified by binary HEART domain score

Experience ^b	Overall (N=232)	HEART Score by Domain ^a					
		Traditional Values		Partner Support		Partner Abuse and Control	
		Low (n=160)	High (n=72)	Low (n=106)	High (n=126)	Low (n=170)	High (n=62)
1. How did you feel when you talked with your primary partner about EPT? n (%)							
Neutral	90 (39%)	62 (39%)	28 (39%)	42 (40%)	48 (38%)	63 (37%)	27 (44%)
Nervous	74 (32%)	47(29%)	27 (38%)	38 (36%)	36 (29%)	55 (32%)	19 (31%)
Scared/fearful	19 (8%)	12 (8%)	7 (10%)	11 (10%)	8 (6%)	13 (8%)	6 (10%)
Anxious	18 (8%)	12 (8%)	6 (8%)	7 (7%)	11 (9%)	15 (9%)	3 (5%)
Relieved	18 (8%)	12 (8%)	6 (8%)	8 (8%)	10 (8%)	11 (6%)	7 (11%)
Angry	12 (5%)	9 (6%)	3 (4%)	4 (4%)	8 (6%)	10 (6%)	2 (3%)
Happy	9 (4%)	6 (4%)	3 (4%)	5 (5%)	4 (3%)	7 (4%)	2 (3%)
Frustrated	2 (1%)	2 (1%)	0 (0%)	1 (1%)	1 (1%)	2 (1%)	0 (0%)
Appreciative	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Other ^c	10 (4%)	9 (6%)	1 (1%)	3 (3%)	7 (6%)	8 (5%)	2 (3%)
2. How did your primary partner respond when you offered him EPT? n (%)							
Acted neutral	108 (47%)	78 (49%)	30 (42%)	48 (45%)	60 (48%)	81 (48%)	27 (44%)
Seemed confused	34 (15%)	23 (14%)	11 (15%)	18 (17%)	16 (13%)	26 (15%)	8 (13%)
Seemed relieved	28 (12%)	20 (12%)	8 (11%)	12 (11%)	16 (13%)	22 (13%)	6 (10%)
Expressed appreciation	21 (9%)	15 (9%)	6 (8%)	11 (10%)	10 (8%)	13 (8%)	8 (13%)
Got angry ^d	19 (8%)	14 (9%)	5 (7%)	6 (6%)	13 (10%)	13 (8%)	6 (10%)
Refused to believe the participant	11 (5%)	7 (4%)	4 (6%)	5 (5%)	6 (5%)	6 (4%)	5 (8%)
Blamed the participant for bringing in infection	7 (3%)	2 (1%)	5 (7%)	4 (4%)	3 (2%)	5 (3%)	2 (3%)
Shocked/surprised	6 (3%)	4 (3%)	2 (3%)	2 (2%)	4 (3%)	4 (2%)	2 (3%)
He ended the relationship	1 (<1%)	0 (0%)	1 (1%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)
Reacted violently ^e	1 (<1%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	1 (2%)
Other ^f	16 (7%)	10 (6%)	6 (8%)	8 (8%)	8 (6%)	11 (6%)	5 (8%)
3. How has delivering EPT to your primary partner impacted your relationship? n (%)							
No change in the relationship	132 (57%)	91 (57%)	41 (57%)	60 (57%)	72 (57%)	96 (56%)	36 (58%)
Made us closer	40 (17%)	30 (19%)	10 (14%)	18 (17%)	22 (17%)	33 (19%)	7 (11%)
Has impacted trust and respect	36 (16%)	25 (16%)	11 (15%)	18 (17%)	18 (14%)	27 (16%)	9 (15%)
I ended the relationship	15 (6%)	8 (5%)	7 (10%)	6 (6%)	9 (7%)	9 (5%)	6 (10%)
Has caused discomfort	6 (3%)	4 (2%)	2 (3%)	4 (4%)	2 (2%)	3 (2%)	3 (5%)
Has caused stress or anxiety	3 (1%)	2 (1%)	1 (1%)	1 (1%)	2 (2%)	2 (1%)	1 (2%)
My partner ended the relationship	3 (1%)	1 (1%)	2 (3%)	3 (3%)	0 (0%)	1 (1%)	2 (3%)

Table 5 (continued)

Experience ^b	Overall (N=232)	HEART Score by Domain ^a					
		Traditional Values		Partner Support		Partner Abuse and Control	
		Low (n=160)	High (n=72)	Low (n=106)	High (n=126)	Low (n=170)	High (n=62)
Mutually ended the relationship	1 (<1%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)	0 (0%)
Other ^g	1 (<1%)	0 (0%)	1 (%)	1 (1%)	0 (0%)	0 (0%)	1 (2%)
4. How has delivering EPT affected the pleasure in your sexual relationship with your primary partner? n (%)							
Less pleasure	16 (7%)	11 (7%)	5 (7%)	6 (6%)	10 (8%)	11 (6%)	5 (8%)
More pleasure	23 (10%)	20 (12%)	3 (4%)	8 (8%)	15 (12%)	20 (12%)	3 (5%)
No effect	136 (59%)	92 (58%)	44 (61%)	63 (59%)	73 (58%)	100 (59%)	36 (58%)
Not applicable / no longer with that partner	9 (4%)	7 (4%)	2 (3%)	3 (3%)	6 (5%)	7 (4%)	2 (3%)
No sexual activity since my STI diagnosis	48 (21%)	30 (19%)	18 (25%)	26 (25%)	22 (17%)	32 (19%)	16 (26%)

Abbreviations: EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; STI, sexually transmitted infection.

a. Binary HEART score variable based on the count of questions scoring ≥ 4 in each domain, cut points: *traditional values* low=0, high=1-9; *partner support* low=0-5, high=6; *partner abuse and control* low=0, high=1-7.

b. Multiple responses allowed for questions 1-3. One response allowed for question 4.

c. Other (n=10): "Awkward" (n=2); "A bit embarrassed"; "Ashamed"; "Guilty"; "Helpful"; "Sad"; "Safe"; "Uncomfortable"; "She did not tell the partner what the treatment was for".

d. "Got angry" includes 17 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 2 responses from "negative social impact" free text field on Social Impacts eCRF, total 17+2=19 angry responses.

e. "Reacted violently" includes 0 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 1 response from "negative social impact" free text field on Social Impacts eCRF, total 0+1=1 angry response. The one violent reaction was reported in conjunction with anger.

f. Other (n=16): "Awkward"; "Curious"; "Dismissive"; "Felt guilty"; "Nervous"; "Tense and quiet"; "Understanding"; "Upset"; "He asked a lot of questions and complained of having to abstain from sexual intercourse for 7 days"; "He knew that he had an STI, he apologized profusely"; "He laughed, but took it willingly"; "Initially the partner did not want to believe the STI diagnosis but in the end did accept the EPT treatment"; "Partner was in disbelief of the STI diagnosis. He got angry but was not violent towards the participant. Participant is not sure about the status of the relationship since she spoke with him about the STI. Participant however does not view this as a negative social impact."; "Partner was scared"; "She did not tell the partner what the treatment was for"; "Was doubtful at first but after explaining he understood".

g. Other (n=1): "Complicated".

Shading indicates percentage of participants who responded "yes": 0-10%, >10-20%, >20-30%, >30%.

Table 6: Sociodemographic characteristics of ARISE participants included in analysis, overall and stratified by three-level categorical HEART domain score

Characteristic	Overall (N=257)	HEART Score by Domain ^a								
		Traditional Values			Partner Support			Partner Abuse and Control		
		Low (N=179)	Medium (N=65)	High (N=13)	Low (N=22)	Medium (N=96)	High (N=139)	Low (N=185)	Medium (N=66)	High (N=6)
Age, years, median [IQR]	21.0 [20.0, 23.0]	21.0 [20.0, 23.0]	21.0 [20.0, 22.0]	21.0 [20.0, 23.0]	22.0 [20.3, 22.8]	20.0 [19.0, 22.0]	21.0 [20.0, 23.0]	21.0 [20.0, 23.0]	20.0 [19.0, 22.0]	21.5 [21.0, 22.0]
Highest level of education, n (%)										
Primary school ^b	61 (24%)	41 (23%)	17 (26%)	3 (23%)	6 (27%)	24 (25%)	31 (22%)	45 (24%)	16 (24%)	0 (0%)
Secondary school	184 (72%)	130 (73%)	45 (69%)	9 (69%)	14 (64%)	70 (73%)	100 (72%)	131 (71%)	48 (73%)	5 (83%)
College or university	12 (5%)	8 (4%)	3 (5%)	1 (8%)	2 (9%)	2 (2%)	8 (6%)	9 (5%)	2 (3%)	1 (17%)
Number of non-primary partners in last 3 months, n (%)										
0	149 (58%)	101 (56%)	42 (65%)	6 (46%)	13 (59%)	51 (53%)	85 (61%)	108 (58%)	36 (55%)	5 (83%)
1	65 (25%)	47 (26%)	16 (25%)	2 (15%)	4 (18%)	29 (30%)	32 (23%)	47 (25%)	17 (26%)	1 (17%)
2 or more	43 (17%)	31 (17%)	7 (11%)	5 (38%)	5 (23%)	16 (17%)	22 (16%)	30 (16%)	13 (20%)	0 (0%)
Currently using contraception, n (%)	159 (62%)	108 (60%)	41 (63%)	10 (77%)	16 (73%)	56 (58%)	87 (63%)	114 (62%)	42 (64%)	3 (50%)
Has ever had an STI, n (%)										
No	176 (68%)	127 (71%)	43 (66%)	6 (46%)	14 (64%)	61 (64%)	101 (73%)	133 (72%)	39 (59%)	4 (67%)
Yes	53 (21%)	35 (20%)	13 (20%)	5 (38%)	4 (18%)	21 (22%)	28 (20%)	37 (20%)	15 (23%)	1 (17%)
Not sure	28 (11%)	17 (9%)	9 (14%)	2 (15%)	4 (18%)	14 (15%)	10 (7%)	15 (8%)	12 (18%)	1 (17%)

Table 6 (continued)

Characteristic	Overall (N=257)	HEART Score by Domain ^a								
		Traditional Values			Partner Support			Partner Abuse and Control		
		Low (N=179)	Medium (N=65)	High (N=13)	Low (N=22)	Medium (N=96)	High (N=139)	Low (N=185)	Medium (N=66)	High (N=6)
Age of primary partner, years^c, median [IQR]	25.0 [23.0, 27.0]	25.0 [23.0, 27.8]	25.0 [23.0, 27.0]	25.0 [23.0, 27.0]	24.0 [23.0, 26.0]	25.0 [23.0, 28.0]	25.0 [22.0, 27.0]	25.0 [23.0, 28.0]	24.0 [22.0, 27.0]	24.0 [22.3, 25.8]
Primary partner ≥5 years older, n (%)^c	112 (44%)	76 (43%)	32 (49%)	4 (31%)	7 (33%)	49 (51%)	56 (40%)	83 (45%)	28 (43%)	1 (17%)
Duration of relationship with primary partner, months, median [IQR]	24.0 [10.0, 36.0]	24.0 [10.0, 36.0]	24.0 [12.0, 36.0]	36.0 [9.00, 45.0]	24.0 [9.75, 24.8]	24.0 [12.0, 46.5]	24.0 [8.00, 36.0]	24.0 [10.0, 36.0]	24.0 [9.25, 48.0]	24.5 [24.0, 42.3]
Type of relationship with primary partner, n (%)										
Husband	4 (2%)	3 (2%)	1 (2%)	0 (0%)	0 (0%)	2 (2%)	2 (1%)	3 (2%)	1 (2%)	0 (0%)
Fiancé	3 (1%)	2 (1%)	0 (0%)	1 (8%)	0 (0%)	3 (3%)	0 (0%)	1 (1%)	2 (3%)	0 (0%)
Boyfriend	246 (96%)	171 (96%)	63 (97%)	12 (92%)	21 (95%)	89 (93%)	136 (98%)	180 (97%)	60 (91%)	6 (100%)
Casual/friend with benefits	4 (2%)	3 (2%)	1 (2%)	0 (0%)	1 (5%)	2 (2%)	1 (1%)	1 (1%)	3 (5%)	0 (0%)
Living with partner, n (%)	10 (4%)	5 (3%)	4 (6%)	1 (8%)	1 (5%)	6 (6%)	3 (2%)	7 (4%)	2 (3%)	1 (17%)
Partner as source of income, n (%)	44 (17%)	33 (18%)	9 (14%)	2 (15%)	6 (27%)	21 (22%)	17 (12%)	28 (15%)	15 (23%)	1 (17%)

Abbreviations: HEART, HEAlthy Relationship Assessment Tool; IQR, interquartile range; STI, sexually transmitted infection.

a. Three-level categorical HEART score variable based on the count of questions scoring ≥4 in each domain, cut points: *traditional values*, low=0, medium=1-4, high=5-9; *partner support*, low=0-2, medium=3-5, high=6; *partner abuse and control*, low=0, medium=1-3, high=4-7.

b. Includes 1 participant who did not complete primary school.

c. Denominator N=256 due to missing n=1 (did not know age of primary partner).

Percentages may not total 100% due to rounding.

Table 7: Association between three-level categorical and continuous versions of HEART domain score, and EPT acceptance at enrollment, and EPT delivery to primary partner at one month

HEART Score by Domain ^a	EPT Acceptance (N=257)		EPT Delivery (N=244)	
	Prevalence, n/N (%) ^b	PR (95% CI)	Prevalence, n/N (%) ^c	PR (95% CI)
Traditional Values				
Categorical				
Low	171/179 (96%)	Reference	160/171 (94%)	Reference
Medium	60/65 (92%)	0.97 (0.89, 1.04)	59/60 (98%)	1.05 (1.00, 1.11)
High	13/13 (100%)	1.05 (1.01, 1.08)	13/13 (100%)	1.07 (1.03, 1.11)
Continuous	244/257 (95%)	1.01 (1.00, 1.01)	232/244 (95%)	1.01 (1.00, 1.02)
Partner Support				
Categorical				
Low	21/22 (95%)	0.99 (0.90, 1.09)	19/21 (90%)	0.96 (0.83, 1.11)
Medium	89/96 (93%)	0.96 (0.90, 1.03)	87/89 (98%)	1.04 (0.99, 1.10)
High	134/139 (96%)	Reference	126/134 (94%)	Reference
Continuous	244/257 (95%)	0.99 (0.97, 1.01)	232/244 (95%)	1.00 (0.98, 1.03)
Partner Abuse and Control				
Categorical				
Low	180/185 (97%)	Reference	170/180 (94%)	Reference
Medium	58/66 (88%)	0.90 (0.82, 0.99)	56/58 (97%)	1.02 (0.96, 1.09)
High	6/6 (100%)	1.03 (1.00, 1.05)	6/6 (100%)	1.06 (1.02, 1.10)
Continuous	244/257 (95%)	0.98 (0.95, 1.01)	232/244 (95%)	1.01 (0.99, 1.03)
Abbreviations: EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; PR, prevalence ratio. a. Three-level categorical HEART score variable based on the count of questions scoring ≥ 4 in each domain, cut points: <i>traditional values</i> low=0, medium=1-4, high=5-9; <i>partner support</i> low=0-2, medium=3-5, high=6; <i>partner abuse and control</i> low=0, medium=1-3, high=4-7. b. For EPT acceptance, denominator includes all participants included in analysis. c. For EPT delivery, denominator includes only participants who accepted EPT. Reference group low for <i>traditional values</i>, and <i>partner abuse and control</i>; for continuous version of these domains, PR represents change in likelihood of EPT acceptance for a 1 unit <i>increase</i> in score. Reference group high for <i>partner support</i> domain; for continuous version of this domain, PR represents change in likelihood of EPT acceptance for a 1 unit <i>decrease</i> in score. The following covariates were assessed as potential confounders of the association between relationship dynamics (measured by continuous, binary, and three-level categorical versions of HEART score in each domain) and EPT acceptance and EPT delivery: age; education; number of non-primary partners in last 3 months; primary partner ≥ 5 years older; duration of relationship with primary partner; type of partner; living with partner; partner as source of income. The addition of each variable, in turn, did not meaningfully affect the estimated PRs (defined as change in PR of $>10\%$) when added to the regression model. Since no confounders were identified, our unadjusted model represents the final model in each analysis. PRs in bold are statistically significant at $p<0.05$.				

Table 8: Participant experiences of EPT delivery to primary partner, overall and stratified by three-level categorical HEART domain score

Experience ^b	Overall (N=232)	HEART Score by Domain ^a								
		Traditional Values			Partner Support			Partner Abuse and Control		
		Low (n=160)	Medium (n=59)	High (n=13)	Low (n=19)	Medium (n=87)	High (n=126)	Low (n=170)	Medium (n=56)	High (n=6)
1. How did you feel when you talked with your primary partner about EPT? n (%)										
Neutral	90 (39%)	62 (39%)	23 (39%)	5 (38%)	7 (37%)	35 (40%)	48 (38%)	63 (37%)	25 (45%)	2 (33%)
Nervous	74 (32%)	47 (29%)	23 (39%)	4 (31%)	7 (37%)	31 (36%)	36 (29%)	55 (32%)	16 (29%)	3 (50%)
Scared/fearful	19 (8%)	12 (8%)	6 (10%)	1 (8%)	2 (11%)	9 (10%)	8 (6%)	13 (8%)	5 (9%)	1 (17%)
Anxious	18 (8%)	12 (8%)	6 (10%)	0 (0%)	1 (5%)	6 (7%)	11 (9%)	15 (9%)	3 (5%)	0 (0%)
Relieved	18 (8%)	12 (8%)	3 (5%)	3 (23%)	1 (5%)	7 (8%)	10 (8%)	11 (6%)	7 (12%)	0 (0%)
Angry	12 (5%)	9 (6%)	3 (5%)	0 (0%)	0 (0%)	4 (5%)	8 (6%)	10 (6%)	2 (4%)	0 (0%)
Happy	9 (4%)	6 (4%)	2 (3%)	1 (8%)	1 (5%)	4 (5%)	4 (3%)	7 (4%)	2 (4%)	0 (0%)
Frustrated	2 (1%)	2 (1%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)	2 (1%)	0 (0%)	0 (0%)
Appreciative	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Other ^c	10 (4%)	9 (6%)	1 (2%)	0 (0%)	1 (5%)	2 (2%)	7 (6%)	8 (5%)	2 (4%)	0 (0%)
2. How did your primary partner respond when you offered him EPT? n (%)										
Acted neutral	108 (47%)	78 (49%)	22 (37%)	8 (62%)	7 (37%)	41 (47%)	60 (48%)	81 (48%)	23 (41%)	4 (67%)
Seemed confused	34 (15%)	23 (14%)	10 (17%)	1 (8%)	3 (16%)	15 (17%)	16 (13%)	26 (15%)	8 (14%)	0 (0%)
Seemed relieved	28 (12%)	20 (12%)	7 (12%)	1 (8%)	3 (16%)	9 (10%)	16 (13%)	22 (13%)	5 (9%)	1 (17%)
Expressed appreciation	21 (9%)	15 (9%)	5 (8%)	1 (8%)	1 (5%)	10 (11%)	10 (8%)	13 (8%)	7 (12%)	1 (17%)
Got angry ^d	19 (8%)	14 (9%)	5 (8%)	0 (0%)	1 (5%)	5 (6%)	13 (10%)	13 (8%)	6 (11%)	0 (0%)
Refused to believe the participant	11 (5%)	7 (4%)	3 (5%)	1 (8%)	4 (21%)	1 (1%)	6 (5%)	6 (4%)	5 (9%)	0 (0%)
Blamed the participant for bringing in infection	7 (3%)	2 (1%)	5 (8%)	0 (0%)	0 (0%)	4 (5%)	3 (2%)	5 (3%)	2 (4%)	0 (0%)
Shocked/surprised	6 (3%)	4 (3%)	2 (3%)	0 (0%)	0 (0%)	2 (2%)	4 (3%)	4 (2%)	2 (4%)	0 (0%)
He ended the relationship	1 (<1%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	1 (2%)	0 (0%)
Reacted violently ^e	1 (<1%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)
Other ^f	16 (7%)	10 (6%)	5 (7%)	1 (8%)	2 (11%)	6 (7%)	8 (6%)	11 (6%)	5 (9%)	0 (0%)

Table 8 (continued)

Experience ^b	Overall (N=232)	HEART Score by Domain ^a								
		Traditional Values			Partner Support			Partner Abuse and Control		
		Low (n=160)	Medium (n=59)	High (n=13)	Low (n=19)	Medium (n=87)	High (n=126)	Low (n=170)	Medium (n=56)	High (n=6)
3. How has delivering EPT to your primary partner impacted your relationship? n (%)										
No change in the relationship	132 (57%)	91 (57%)	33 (56%)	8 (62%)	7 (37%)	53 (61%)	72 (57%)	96 (56%)	34 (61%)	2 (33%)
Made us closer	40 (17%)	30 (19%)	8 (14%)	2 (15%)	2 (11%)	16 (18%)	22 (17%)	33 (19%)	5 (9%)	2 (33%)
Has impacted trust and respect	36 (16%)	25 (16%)	10 (17%)	1 (8%)	5 (26%)	13 (15%)	18 (14%)	27 (16%)	7 (12%)	2 (33%)
I ended the relationship	15 (6%)	8 (5%)	7 (12%)	0 (0%)	3 (16%)	3 (3%)	9 (7%)	9 (5%)	6 (11%)	0 (0%)
Has caused discomfort	6 (3%)	4 (2%)	1 (2%)	1 (8%)	3 (16%)	1 (1%)	2 (2%)	3 (2%)	3 (5%)	0 (0%)
Has caused stress or anxiety	3 (1%)	2 (1%)	0 (0%)	1 (8%)	0 (0%)	1 (1%)	2 (2%)	2 (1%)	1 (2%)	0 (0%)
My partner ended the relationship	3 (1%)	1 (1%)	2 (3%)	0 (0%)	1 (5%)	2 (2%)	0 (0%)	1 (1%)	2 (4%)	0 (0%)
Mutually ended the relationship	1 (<1%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (%)	1 (1%)	0 (0%)	0 (0%)
Other ^c	1 (<1%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	1 (2%)	0 (0%)
4. How has delivering EPT affected the pleasure in your sexual relationship with your primary partner? n (%)										
No effect	136 (59%)	92 (58%)	34 (58%)	10 (77%)	8 (42%)	55 (63%)	73 (58%)	100 (59%)	32 (57%)	4 (67%)
No sexual activity since my STI diagnosis	48 (21%)	30 (19%)	16 (27%)	2 (15%)	7 (37%)	19 (22%)	22 (17%)	32 (19%)	15 (27%)	1 (17%)
More pleasure	23 (10%)	20 (12%)	3 (5%)	0 (0%)	1 (5%)	7 (8%)	15 (12%)	20 (12%)	2 (4%)	1 (17%)
Less pleasure	16 (7%)	11 (7%)	4 (7%)	1 (8%)	1 (5%)	5 (6%)	10 (8%)	11 (6%)	5 (9%)	0 (0%)
Not applicable / no longer with that partner	9 (4%)	7 (4%)	2 (3%)	0 (0%)	2 (11%)	1 (1%)	6 (5%)	7 (4%)	2 (4%)	0 (0%)

Abbreviations: EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; STI, sexually transmitted infection.

a. Three-level categorical HEART score variable based on the count of questions scoring ≥4 in each domain, cut points: *traditional values* low=0, medium=1-4, high=5-9; *partner support* low=0-2, medium=3-5, high=6; *partner abuse and control* low=0, medium=1-3, high=4-7.

b. Multiple responses allowed for questions 1-3. One response allowed for question 4.

c. Other (n=10): "Awkward" (n=2); "A bit embarrassed"; "Ashamed"; "Guilty"; "Helpful"; "Sad"; "Safe"; "Uncomfortable"; "She did not tell the partner what the treatment was for".

d. "Got angry" includes 17 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 2 responses from "negative social impact" free text field on Social Impacts eCRF, total 17+2=19 angry responses.

e. "Reacted violently" includes 0 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 1 response from "negative social impact" free text field on Social Impacts eCRF, total 0+1=1 angry response. The one violent reaction was reported in conjunction with anger.

Table 8 (continued)

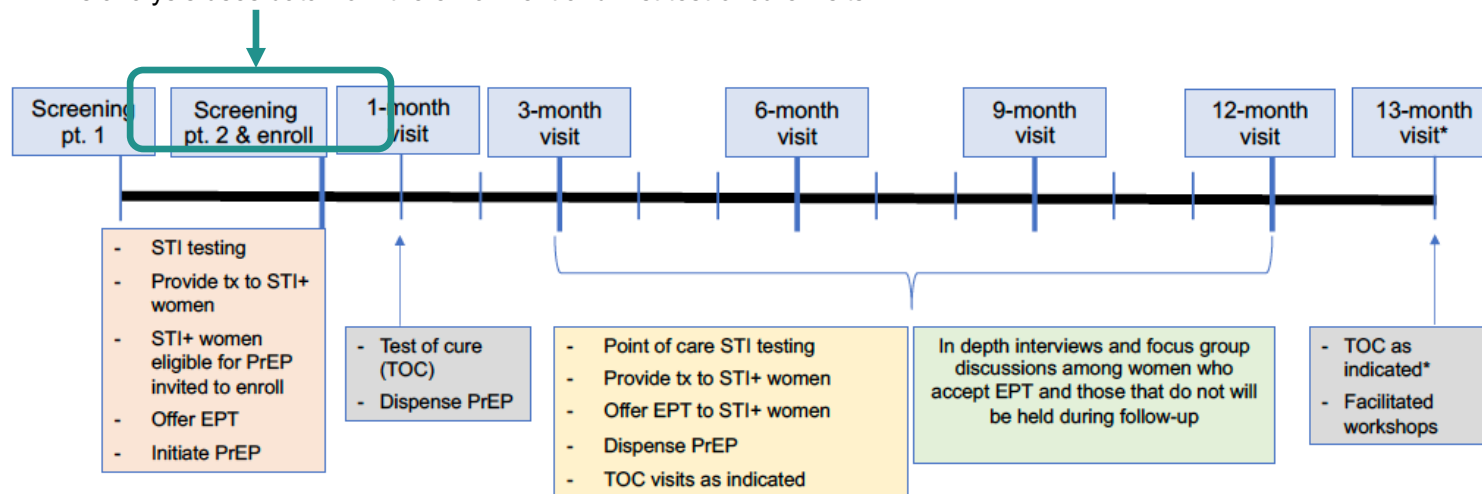
f. Other (n=16): *“Awkward”; “Curious”; “Dismissive”; “Felt guilty”; “Nervous”; “Tense and quiet”; “Understanding”; “Upset”; “He asked a lot of questions and complained of having to abstain from sexual intercourse for 7 days”; “He knew that he had an STI, he apologized profusely”; “He laughed, but took it willingly”; “Initially the partner did not want to believe the STI diagnosis but in the end did accept the EPT treatment”; “Partner was in disbelief of the STI diagnosis. He got angry but was not violent towards the participant. Participant is not sure about the status of the relationship since she spoke with him about the STI. Participant however does not view this as a negative social impact.”; “Partner was scared”; “She did not tell the partner what the treatment was for”; “Was doubtful at first but after explaining he understood”.*

g. Other (n=1): *“Complicated”.*

Shading indicates percentage of participants who responded “yes”: 0-10%, >10-20%, >20-30%, >30%.

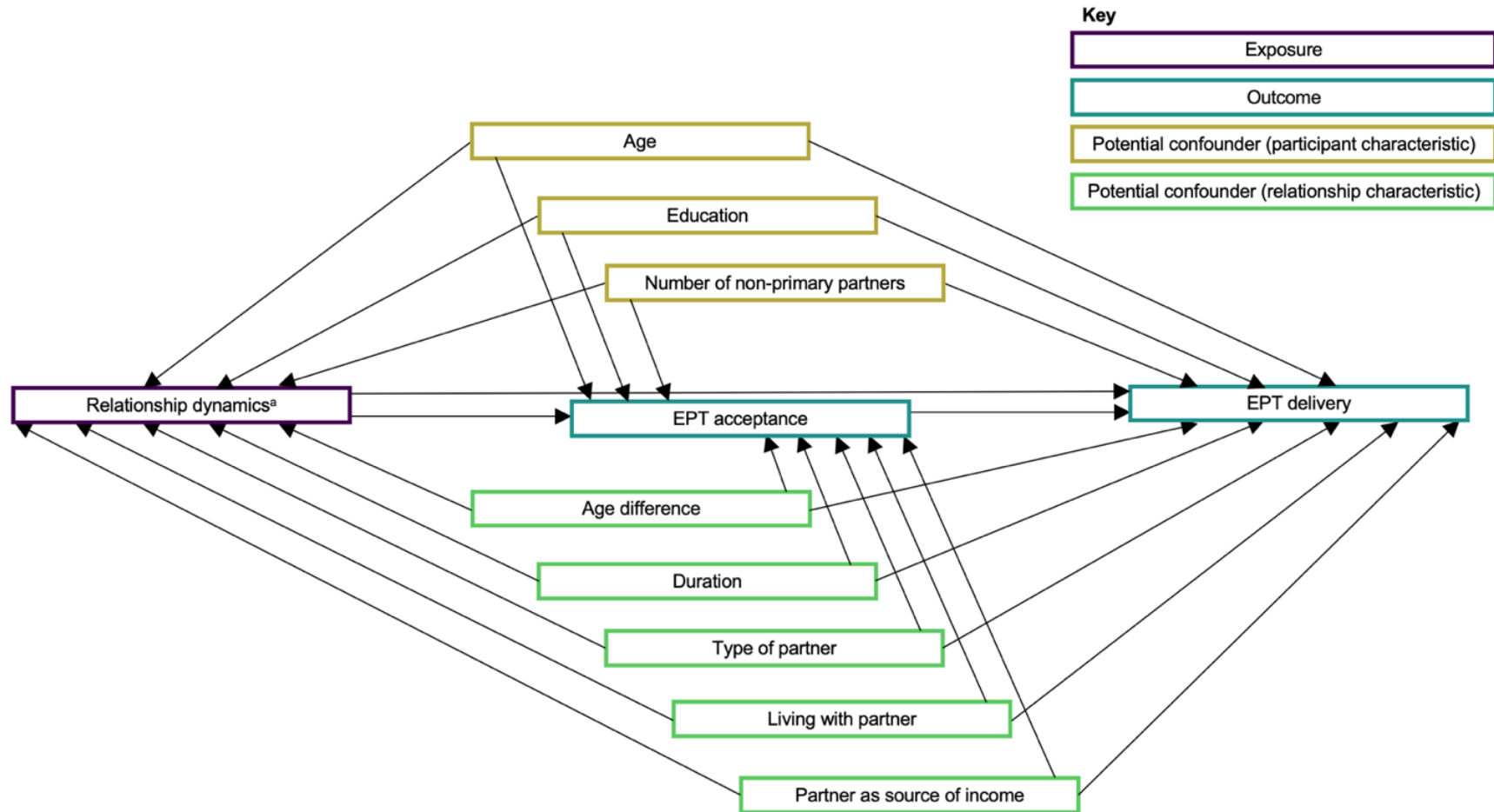
Figure 1: ARISE study participant visit schedule

This analysis uses data from the enrollment and first test of cure visits



Abbreviations: ARISE, Acceptability Research on Integrated point-of-care STI testing and EPT; EPT, expedited partner therapy; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infection; TOC, test of cure.

Figure 2: Causal diagram for the association between relationship dynamics and EPT acceptance and delivery

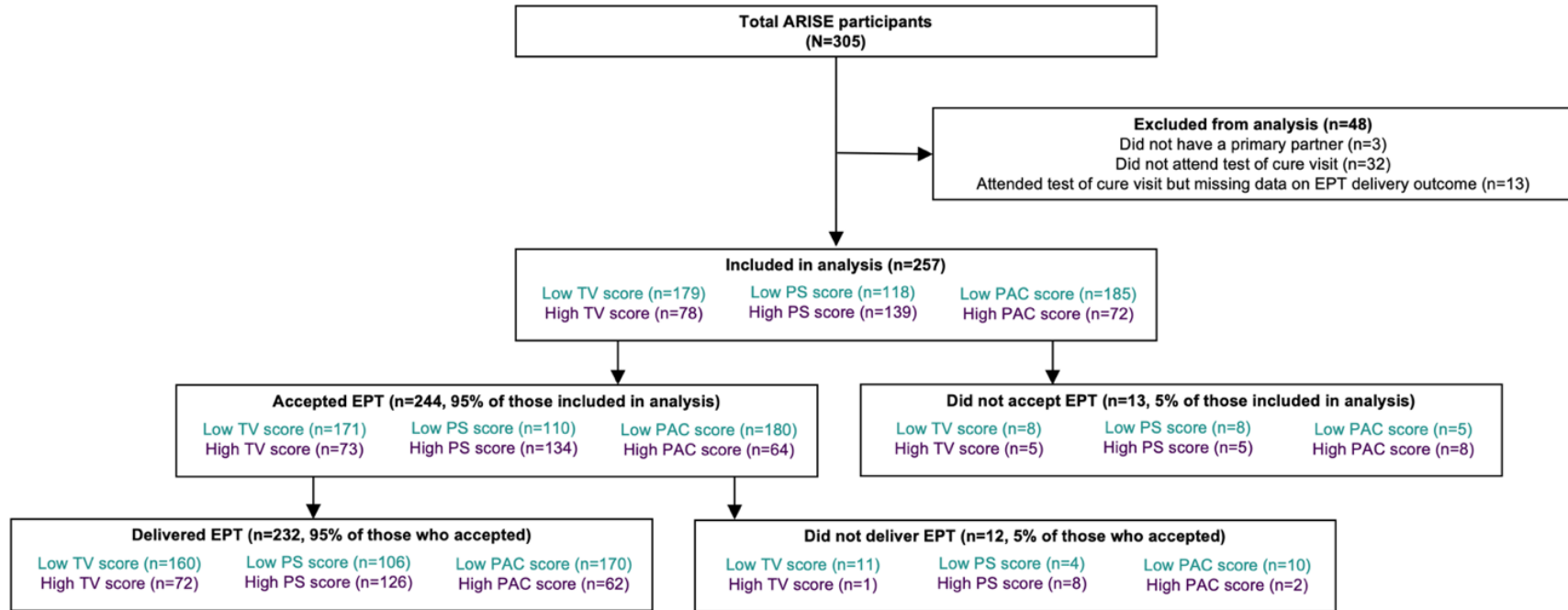


Abbreviations: EPT, expedited partner therapy; HEART, HEALthy Relationship Assessment Tool.

a. As characterized by HEART score for the domains of *traditional values*, *partner support*, and *partner abuse and control*.

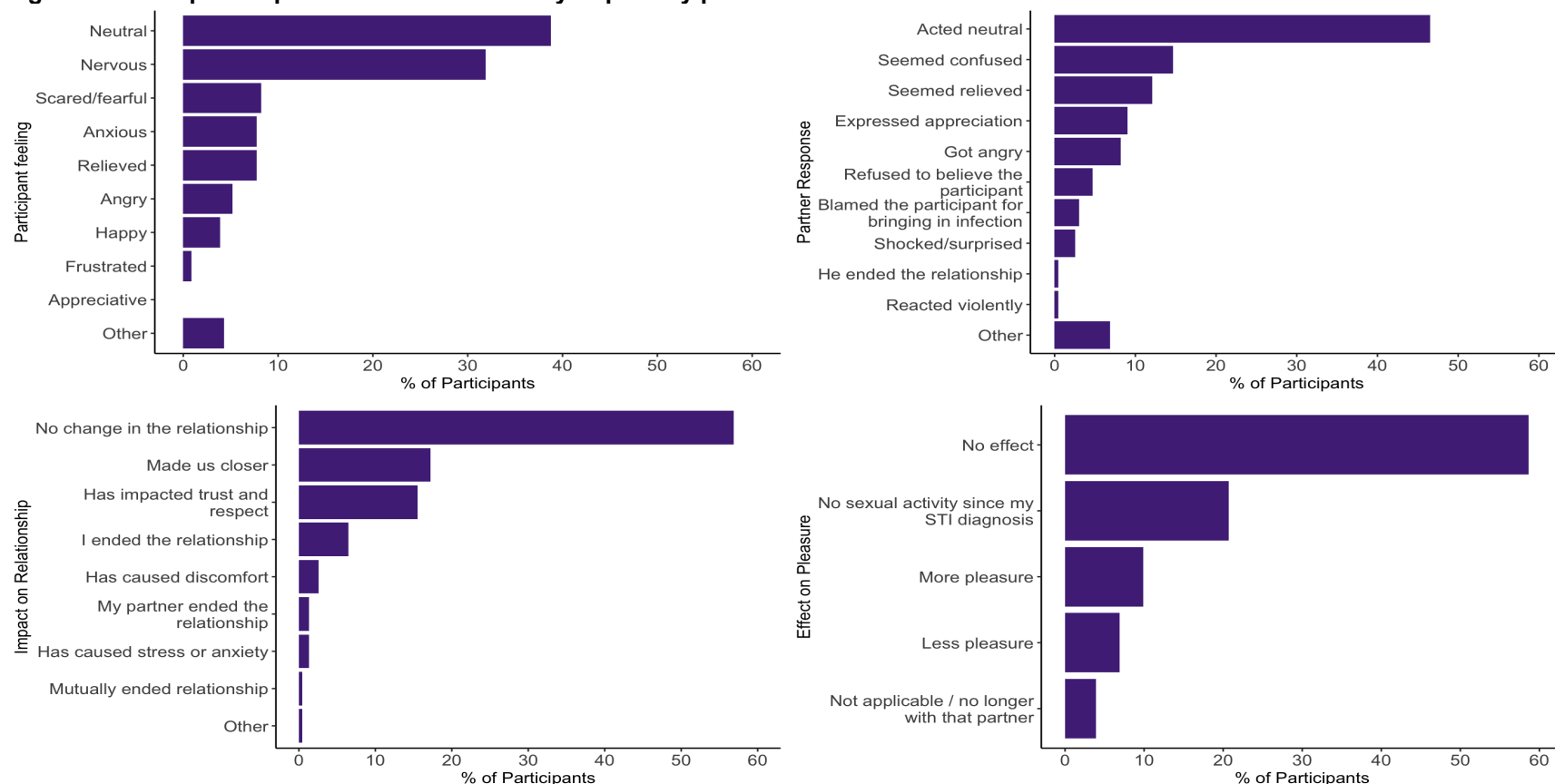
The following covariates were assessed as potential confounders of the association between relationship dynamics (measured by continuous, binary, and three-level categorical versions of HEART score in each domain) and EPT acceptance and EPT delivery: age; education; number of non-primary partners in last 3 months; primary partner ≥ 5 years older; duration of relationship with primary partner; type of partner; living with partner; partner as source of income. The addition of each variable, in turn, did not meaningfully affect the estimated PRs (defined as change in PR of $>10\%$) when added to the regression model. Since no confounders were identified, our unadjusted model represents the final model in each analysis.

Figure 3: Flowchart showing prevalence of EPT acceptance at enrollment and EPT delivery to primary partner at first test of cure visit, overall and stratified by binary HEART domain score



Abbreviations: ARISE, Acceptability Research on Integrated point-of-care STI Testing and EPT; EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; PAC, partner abuse and control; PS, partner support; TV, traditional values.
 Test of cure visit was one month after enrollment visit.

Figure 4: Participant experiences of EPT delivery to primary partner



Top left: Q1 How did you feel when you talked with your primary partner about EPT?

Top right: Q2 How did your primary partner respond when you offered him EPT?

Bottom left: Q3 How has delivering EPT to your primary partner impacted your relationship?

Bottom right: Q4 How has delivering EPT affected the pleasure in your sexual relationship with your primary partner?

Abbreviations: EPT=expedited partner therapy; STI=sexually transmitted infection.

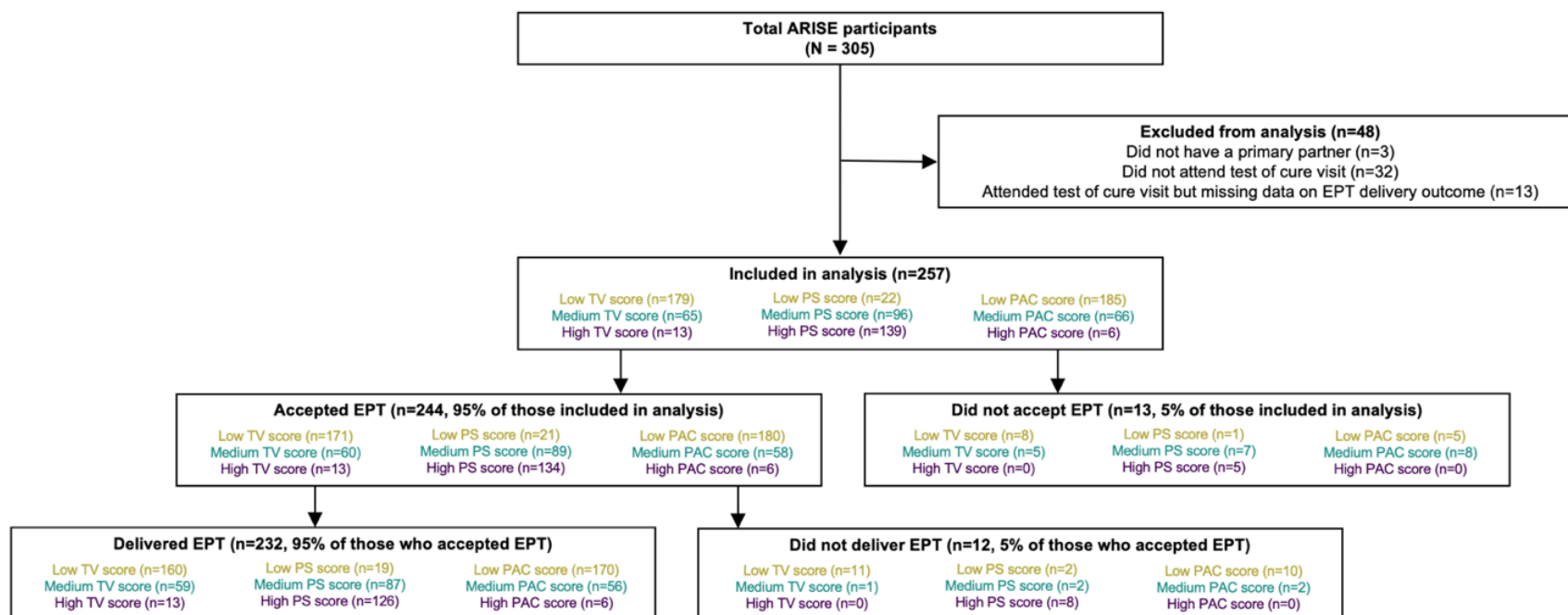
Multiple responses allowed for Q1-3. One response allowed for Q4.

For Q1: Other (n=10): "Awkward" (n=2); "A bit embarrassed"; "Ashamed"; "Guilty"; "Helpful"; "Sad"; "Safe"; "Uncomfortable"; "She did not tell the partner what the treatment was for".

For Q2: "Got angry" includes 17 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 2 responses from "negative social impact" free text field on Social Impacts eCRF, total 17+2=19 angry responses; "Reacted violently" includes 0 responses from multiple choice question on EPT and Contact Card Delivery eCRF and 1 response from "negative social impact" free text field on Social Impacts eCRF, total 0+1=1 angry response. Other (n=16): "Awkward"; "Curious"; "Dismissive"; "Felt guilty"; "Nervous"; "Tense and quiet"; "Understanding"; "Upset"; "He asked a lot of questions and complained of having to abstain from sexual intercourse for 7 days"; "He knew that he had an STI, he apologized profusely"; "He laughed, but took it willingly"; "Initially the partner did not want to believe the STI diagnosis but in the end did accept the EPT treatment"; "Partner was in disbelief of the STI diagnosis. He got angry but was not violent towards the participant. Participant is not sure about the status of the relationship since she spoke with him about the STI. Participant however does not view this as a negative social impact."; "Partner was scared"; "She did not tell the partner what the treatment was for"; "Was doubtful at first but after explaining he understood".

For Q3: Other (n=1): "Complicated".

Figure 5: Flowchart showing prevalence of EPT acceptance at enrollment and EPT delivery to primary partner at first test of cure visit, overall and stratified by three-level categorical HEART domain score



Abbreviations: ARISE, Acceptability Research on Integrated point-of-care STI Testing and EPT; EPT, expedited partner therapy; HEART, HEAlthy Relationship Assessment Tool; PAC, partner abuse and control; PS, partner support; TV, traditional values. Test of cure visit was one month after enrollment visit.