



Deriving a clinical prediction rule to target sexual healthcare to women attending British General Practices



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ABSTRACT

Some women attending General Practices (GPs) are at higher risk of unintended pregnancy (RUIP) and sexually transmitted infections (STI) than others. A clinical prediction rule (CPR) may help target resources using psychosocial questions as an acceptable, effective means of assessment. The aim was to derive a CPR that discriminates women who would benefit from sexual health discussion and intervention.

Participants were recruited to a cross-sectional survey from six GPs in a city in South-East England in 2016. On arrival, female patients aged 16–44 years were invited to complete a questionnaire that addressed psychosocial factors, and the following self-reported outcomes: 2+ sexual partners in the last year (2PP) and RUIP. For each sexual risk, psychosocial questions were retained from logistic regression modelling which best discriminated women at risk using the C-statistic. Sensitivity and specificity were established in consultation with GP staff.

The final sample comprised $N = 1238$ women. 2PP was predicted by 11 questions including age, binge-drinking weekly, ever having a partner who insulted you often, current smoking, and not cohabiting (C-statistic = 0.83, sensitivity = 73% and specificity = 77%). RUIP was predicted by 5 questions including sexual debut < 16 years, and emergency contraception use in the last 6 months (C-statistic = 0.70, sensitivity = 69% and specificity = 57%).

2PP was better discriminated than RUIP but neither to a clinically-useful degree. The finding that different psychosocial factors predicted each outcome has implications for prevention strategies. Further research should investigate causal links between psychosocial factors and sexual risk.

1. Introduction

In Britain, General Practices (GP) act as the gatekeeper to specialist secondary services, and are staffed by Practice Nurses and General Practitioners (akin to Family Physicians in the United States). In England 58,969,634 people (approximately 90% of the resident population) are currently registered with a GP (NHS Digital, 2018) from whom they can also obtain a range of interventions directly. Britain's sexual health guidance and policy (DH, 2001, 2013) recommends GPs as sites for provision of sexual health interventions. This widens the availability of testing for sexually transmitted infections (STIs) and contraception; to a broad population who are likely to vary in need for those interventions to a greater degree than those attending specialist

contraception and sexual health (CASH) services (Cassell et al., 2006). Without an evidence-based means of targeting these interventions to women in GPs, resources may be wasted offering interventions unnecessarily (Fairley, 2016). Opportunities may also be missed to offer STI testing and contraception to high-risk individuals presenting for unrelated problems.

Within CASH clinics, a sexual history is the standard approach to determining appropriate intervention. This is resource-intensive during GP appointments for unrelated concerns and may feel unacceptable to some GP attenders (Edelman et al., 2013; Define, 2008), leading to possible under-report (DiClemente, 2016). Guidance recommends STI screening in GP settings only for target populations such as men who have sex with men, and for symptomatic individuals. The absence of

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Table 1
Candidate predictors (prospective CPR items).

Item wording	Response options	Source
How old are you?	<ul style="list-style-type: none"> • 15 years or less • Between 16 and 24 years • Between 25 and 34 years • Between 35 and 44 years • 45 years or older 	Natsal-3 wording, categories developed by authors
Thinking about where you are living now, which statement best describes your circumstances?	<ul style="list-style-type: none"> • I am renting or living rent-free (including living with parents or staying with friends) • I own my own home (including mortgage, shared ownership or bought outright) 	Natsal-3 response options with different piloted question wording
Did you live more or less continuously with <u>both of your natural (birth parents)</u> at home until you were 14?	<ul style="list-style-type: none"> • Yes • No • Prefer not to answer 	Natsal-3 with underline instead of lengthy explanatory text
How often is each of the following kinds of support available to you if you need it: Someone to help if you're confined to bed Someone to take you to the doctor if you need it Someone to prepare your meals if you're unable to do it yourself Someone to help with daily chores if you're sick	<ul style="list-style-type: none"> • None of the time • A little of the time • Some of the time • Most of the time • All of the time 	Canadian Community Health Survey (systematic review)
To what extent is the statement 'I have high self-esteem' true for you	<ul style="list-style-type: none"> • Not very true of me • Somewhat untrue of me • Neither untrue nor true of me • Somewhat true of me • Very true of me 	Robins' Single Item Self-Esteem Scale (SISE)
In the last 12 months have you received treatment from a health professional for depression?	<ul style="list-style-type: none"> • Yes • No • Prefer not to answer 	Natsal-3 with slightly adapted wording (as this was presented in a card)
How strongly do you agree with the statement 'Having a partner at all times is important to me'?	<ul style="list-style-type: none"> • Strongly agree • Agree • Disagree • Strongly disagree 	Atlanta Centre for Disease Control (CDC) study
How often do you have 6 or more units of alcohol on one occasion?	<ul style="list-style-type: none"> • Daily or almost daily • Weekly or almost weekly • Monthly • Less than monthly • Never • Prefer not to answer 	Natsal-3 (also an item in the validated Fast Alcohol Screening Test)
Do you smoke cigarettes at all nowadays?	<ul style="list-style-type: none"> • Yes I smoke cigarettes or roll-ups • Yes I smoke e-cigarettes • No • Prefer not to answer 	Natsal-3 with additional e-cigarette category developed following PPI
Have you <u>ever</u> taken any non-prescribed, illicit or illegal drugs, including legal highs?	<ul style="list-style-type: none"> • Yes • No • Don't know • Prefer not to answer 	Natsal-3 with wording adapted to specify that legal highs included following PPI
At present are you....	<ul style="list-style-type: none"> • Living as a couple with a partner or spouse • In a steady relationship but not living together • In a casual relationship • Single • Prefer not to answer 	Natsal-3
Please rate how emotionally satisfying your current relationship is, or how emotionally satisfying your most recent relationship was if you are currently single	<ul style="list-style-type: none"> • Extremely satisfying • Very satisfying • Moderately satisfying • Slightly satisfying • Not at all satisfying • Prefer not to answer 	Testa et al., 2005 (not systematic review)
Please indicate how strongly you agree with the following statement: My partner tells me who I can spend time with My partner does what he wants even if I don't want him to	<ul style="list-style-type: none"> • Strongly agree • Agree • Disagree • Strongly disagree • Prefer not to answer 	Atlanta CDC study
<u>During</u> your current or most recent relationship did your partner ever have sexual intercourse with anyone besides you	<ul style="list-style-type: none"> • No definitely not • I don't think so • It's quite likely • Yes, definitely • Prefer not to answer 	Testa et al., 2005 (not systematic review)
Have you ever been in a relationship with a partner who... Insulted or talked down to you often? Shouted or swore at you often? Threatened you with harm sometimes? Physically hurt you sometimes?	<ul style="list-style-type: none"> • Yes • No • Prefer not to answer 	HITS domestic violence tool (GP in place of Australian Women's Health Survey tool in systematic review)

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