Early impact of COVID-19 social distancing measures on reported sexual behaviour of HIV pre-exposure prophylaxis users in Wales

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Early impact of COVID-19 social distancing measures on reported sexual behaviour of HIV pre-exposure prophylaxis users in Wales

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Key messages

- Introducing social distancing measures and alterations to sexual health services were associated with a reduction in reported condomless sex among PrEP users included in the study (primarily white men who have sex with men).
- This reduction was more substantial for those who were single (and therefore less likely to have a regular partner) than those who were not single.
- The was no evidence to suggest variation across sexual health clinics.
- This work supports calls for mass testing and treatment for STIs and HIV in at-risk populations across the UK.
- Long-term implications of the measures introduced to control the impact of COVID-19, in particular the physical and mental wellbeing of PrEP users, require close examination.

Abstract:

Objectives: To describe the early impact of COVID-19 and associated control measures on the sexual behaviour of PrEP users in Wales.

Methods: Data were obtained from an ecological momentary assessment study of PrEP use and sexual behaviour. Participants were individuals accessing PrEP through NHS sexual health clinics across four health boards in Wales. Weekly data documenting condomless sex in the preceding week were analysed between 03/02/2020 and 10/05/2020. The introduction of social distancing measures and changes to sexual health clinics in Wales occurred on the week commencing 16/03/2020. Two-level logistic regression models were fitted to condomless sex (yes/no) over time, included an indicator for the week commencing 16/03/2020, and were extended to explore differential associations by relationship status and sexual health clinic.

Results: Data were available from 56 participants and included 697 person-weeks (89% of the maximum number that could have been obtained). On average, 42% of participants reported condomless sex in the period prior to the introduction of social distancing measures, and 20% reported condomless sex after (OR = 0·16, 95% CI: 0·07 to 0·37, $p < 0·001$). There was some evidence to suggest that this association was moderated by relationship status (OR for single participants = 0·09, 95% CI: 0·04 to 0·23; OR for not single participants = 0·46, 95% CI: 0·17 to 1·25).

Conclusions: The introduction of social distancing measures and changes to PrEP services across Wales was associated with a marked reduction in reported instances of condomless sexual intercourse amongst respondents, with a larger reduction in those who were single compared to those who were not. The long-term impact of COVID-19 and associated control measures on this population's physical and mental health and wellbeing requires close examination.

Main text:

Introduction

The international community has adopted various measures to control the spread of SARS-CoV-2, the respiratory virus that causes COVID-19. The UK government introduced social distancing measures from 16th March 2020, to restrict journeys outdoors and limit physical proximity, including contacts with family and friends.[1, 2] Concurrently, necessity to redirect staff and resources to treat people hospitalised with COVID-19 has led to a suspension or alteration of other services across the National Health Service. In Wales, sexual health care has been impacted, limiting provision of HIV pre-exposure prophylaxis (PrEP).

PrEP is prescribed to HIV-negative individuals who are at risk of acquiring HIV through risk behaviours (e.g. condomless sexual intercourse) and prevents HIV by preventing viral replication following an exposure.[3] It has been available across Wales through sexual health clinics since July 2017, with the latest reports indicating that 1,200 individuals have received a prescription for PrEP across six health boards.[4, 5] The extent to which PrEP services have been affected by COVID-19 varies according to the number and timing of cases in different Health Boards.[6] One PrEP clinic, located in a UK COVID-19 hotspot with over 50% of the COVID-19 cases in Wales (on 23rd March 2020), initially paused delivery of PrEP services, with the exception of people at highest risk, for five weeks during the first peak of COVID 19 and has now recommenced services. Other centres are now providing up to six-months' supply of PrEP with or without HIV testing as available. All services are utilising remote consultations during the pandemic. Guidance on sexual contacts, in the context of social distancing and COVID-19 was issued by the British Association for Sexual Health and HIV on 26th March 2020 indicating that people should only have sexual contact with someone if they live within the same household.[7]

This article aims to describe the early impact that COVID-19 and associated control measures on the sexual behaviour of PrEP users in Wales.

Methods

Data were obtained from an ongoing ecological momentary assessment study of individuals in receipt of HIV PrEP across four clinics in four of the six health boards in Wales offering PrEP, and commenced recruitment in September 2019.[8, 9] The clinics and health boards were selected for inclusion in the study to capture a mixture of large and small clinics that were both geographically diverse and served urban and rural populations. Potentially eligible participants were approached to take part consecutively during PrEP clinic attendance, and recruited participants completed questionnaires at four time-points (aligning to PrEP clinic appointments). These questionnaires covered self-reported PrEP use, questions about sex and relationships, health behaviours and beliefs, symptoms commonly attributed to PrEP use, and healthcare contacts. Online surveys were sent weekly to participants asking them to report episodes of condomless sexual intercourse during the preceding week. The cohort closed to recruitment on 27/01/2020 (N=60), and data are reported from 03/02/2020 until 10/05/2020. Two-level logistic regression models were fitted to self-reports of condomless sexual intercourse (yes/no, with repeated observations within participants and an unstructured covariance) and included time (week of completion) as a linear effect and an indicator for the introduction of social distancing measures (16/03/2020). The model was extended to explore differential associations between the introduction of social distancing measures and condomless sexual intercourse by relationship status (single/not single – interpreted as no regular / regular partner) and sexual health clinic (the clinic where PrEP services were largely paused was compared to other clinics). Results are reported as odds ratios (OR), associated 95% confidence intervals. As our primary question relates to overall reports of condomless sexual intercourse following the introduction of social distancing measures, p-values are reported for this finding only.

Results

Data were available from 56 participants (three participants provided no data and one withdrew prior to recruitment ending) covering a maximum of 784 person-weeks. Responses were obtained for 697

person-weeks (88.9%), with 358 person-weeks pre-social distancing measures and 339 post. The number of participants responding within a given week ranged from 45 (week 13) to 52 (weeks 1, 6, 7, and 8). The median number of responses in a given week was 51 (IQR: 48 to 52). All participants were cis-gender male, 55 were white (98·2%), their median age was 36 years (IQR: 28 to 47 years), and 55 had sex exclusively with other men (98·2%). At the beginning of the observed period, 42 of the 56 participants had their relationship status categorised as single (75·0%).

On average, 42·4% of participants reported condomless sexual intercourse in the period prior to the introduction of social distancing measures compared to 19·5% after (OR = 0·16, 95% CI: 0·07 to 0·37, $p < 0·001$). There was evidence to suggest that this association was moderated by relationship status (pre/post social distancing measure condomless sexual intercourse for those single: 42% to 13%; for those not single: 45% to 37%, OR single participant = 0·09, 95% CI: 0·04 to 0·23; OR for not single participant = 0·46, 95% CI: 0·17 to 1.25, Figure 1). There was no evidence to suggest that changes in condomless sexual intercourse following social distancing measures were moderated by sexual health clinic (OR for interaction = 0·70, 95% CI: 0·29 to 1·70).

Conclusions

The introduction of social distancing measures and changes to PrEP services across Wales was associated with a marked reduction in reported instances of condomless sexual intercourse amongst respondents, with a larger reduction in those who were single (and therefore unlikely to have a regular partner) compared to those who were not.

The study utilises an ecological momentary assessment approach, whereby within-person changes can be measured and modelled over time. Furthermore, the study was set-up prior to the COVID-19 pandemic and introduction of social distancing measures. While self-report condom use may generally be subject to social desirability bias, the step-change observed following the introduction of social distancing measures was unlikely to induce an immediate shift in reporting bias.

This cohort study included approximately 5% of all PrEP users in Wales, and covered four of the six health boards in which PrEP is available via the NHS. Study participants were consecutively recruited from sexual health clinics and broadly representative of individuals accessing PrEP through the NHS in Wales (primarily white men who have sex with men). While the median age of the cohort (36 years) was slightly higher than all NHS PrEP users in Wales (31), there was no evidence to suggest that age was associated with differential reports of condomless sexual intercourse pre- and post-introduction of social distancing measures.

However, the use of a binary reports of condomless sexual intercourse may mask changes in other sexual behaviours (e.g. sex with a condom, changes in number of sexual partners). This requires further exploration. The study benefitted from high levels of complete data. However, some biases may have been induced if those not responding to the online sexual behaviour survey were more or less likely to report condomless sexual intercourse than those who did respond. The study included primarily white MSM participants, and while this is largely representative of individuals accessing PrEP through the NHS in Wales, caution is urged when extrapolation these findings to other key populations. Finally, while relationship status was treated as a time-varying variable, reported changes in relationship status were too few to decompose these effects with- and between-individuals. Furthermore, relationship status was not reported as regularly as sexual behaviour, and unmeasured changes in relationship status may explain some reports of condomless sexual intercourse among participants categorised as single and vice versa.

This work provides added weight to calls from sexual health experts to use these control measures as an opportunity to mass test and treat at-risk populations for HIV and other STIs, in order to eliminate them from sexual networks.[10] Furthermore, this analysis indicates a substantial shift in sexual behaviour since the introduction of social distancing measures, and the long-term impact of COVID-19 and associated control measures on this population's physical and mental health and wellbeing requires close examination.

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Ethical approval:

Ethical approval to study sexual behaviour of PrEP users in Wales, how this changes over time, and associated contextual effects was granted by the Wales Research Ethics Committee 3 (reference number 19/WA/0175).

Authors' contributions:

DG led the design, collected data, conducted statistical analysis and drafted the manuscript. CK contributed to the design and interpretation of the article, and drafted the change to PrEP services in Wales. All other authors (DH, ZC, FW, MdB, RM, AJ, AW, and KH) contributed to the design and interpretation of the article and critically revised the manuscript.

Conflict of interest statement:

DG, KH, and FW report receiving funding from Health and Care Research Wales during the conduct of this work. RM reports funding from National Institute for Health Research during the conduct of this study. All other authors report no potential conflicts of interest.

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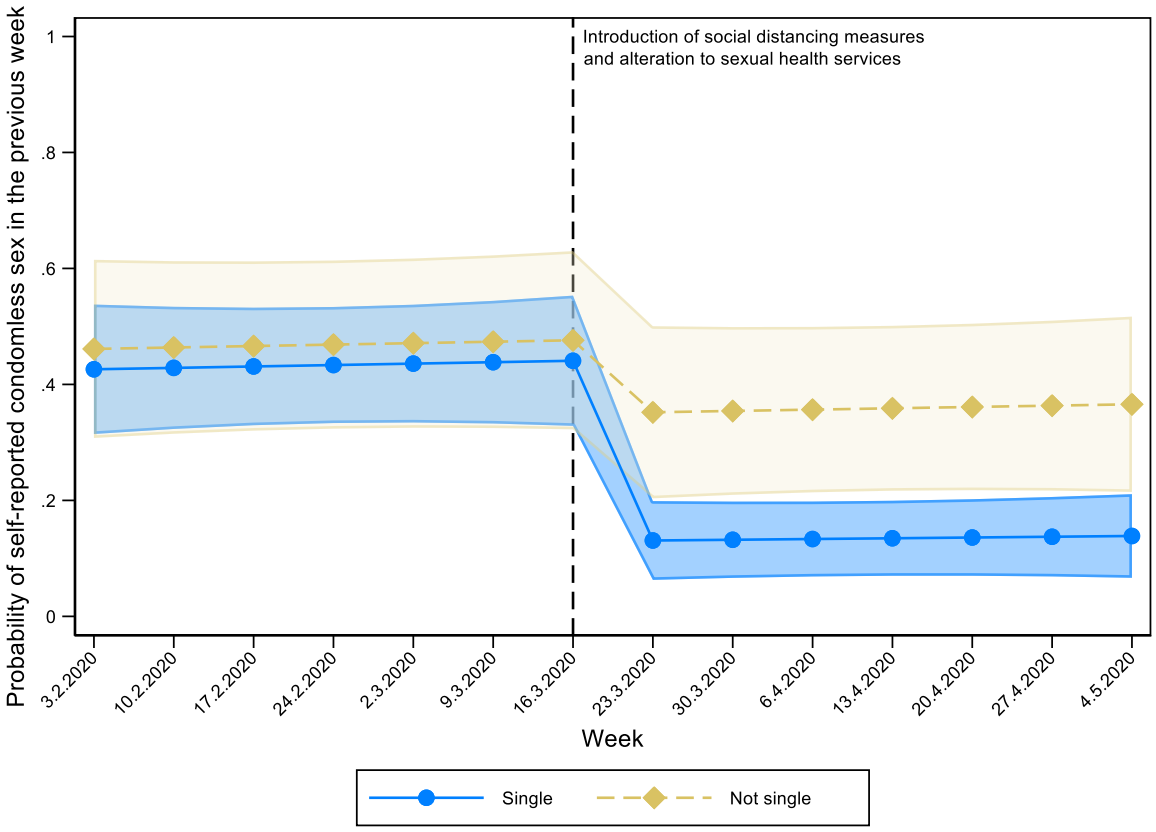

Figure 1: Predicted probabilities of condomless sexual intercourse (in the previous week) over time following the introduction of social distancing measures and the alteration of PrEP services in Wales