

USING EHEALTH TO ENGAGE AND RETAIN PRIORITY POPULATIONS IN THE HIV TREATMENT AND CARE CASCADE IN THE ASIA-PACIFIC REGION: A SYSTEMATIC REVIEW OF LITERATURE

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BACKGROUND

The exponential growth and development of new technologies over the past decade has facilitated mobile technologies and social media playing an increasingly important role in service delivery models to maximise HIV testing and access to treatment and care.

The World Health Organization (WHO) Global Observatory for eHealth (GOe) defines eHealth as “the use of information and communication technologies (ICT) for health”. This encompasses the delivery of health information for health professionals and health consumers, through the internet and telecommunications.

eHealth is increasingly being integrated into HIV-related disease self-management and service delivery. While short message service (SMS) interventions are evidenced to enhance antiretroviral treatment (ART) adherence, eHealth overall is considered the most promising approach to deliver cost-effective interventions along the HIV treatment and care cascade.

Existing reviews of eHealth interventions targeting people living with HIV (PLHIV) focus on the application of specific devices and particular technology functions across a range of HIV priority populations. However, limited reviews have evaluated the use of eHealth in the context of the HIV treatment and care cascade to improve service engagement among HIV priority populations. The most commonly researched HIV priority populations were MSM, with a focus on HIV prevention and testing. This systematic review aimed to describe and critically examine, the uptake of eHealth interventions applied to engage and retain priority populations in HIV treatment and care, in the Asia-Pacific region.

METHOD

The review was informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement from the Cochrane Collaboration guidelines. Both grey and published scientific literature from five different databases were searched for all original articles in English. Initially the review was limited to studies published between January 2010 and December 2014. A subsequent search was conducted to extend review period up until June 2017. The methodological quality of studies included in the review was assessed using the Quality Assessment Tool for Quantitative Studies.

The Population, Intervention, Comparison, Outcome (PICO) (Figure 1) model was used to develop inclusion criteria and search terms. In this review article, the term “Asia-Pacific” refers to the following countries: Australia, Bangladesh, Brunei, Cambodia, China, Cook Islands, Fiji, Hong Kong, India, Indonesia, Japan, Kiribati, Korea, Lao People’s Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand, Timor-Leste, Samoa, Singapore, Solomon Islands, Tonga, Vanuatu, and Vietnam

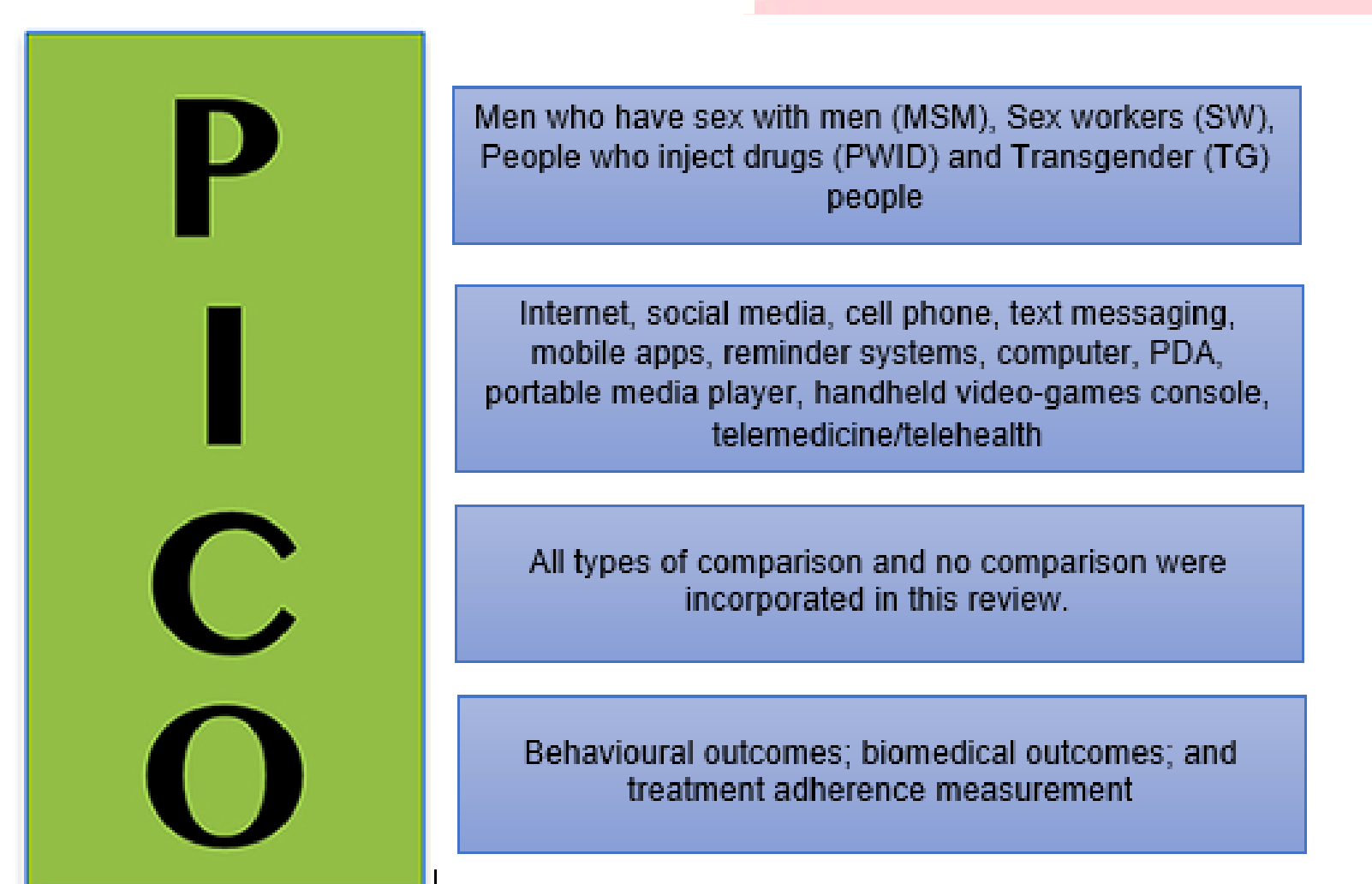
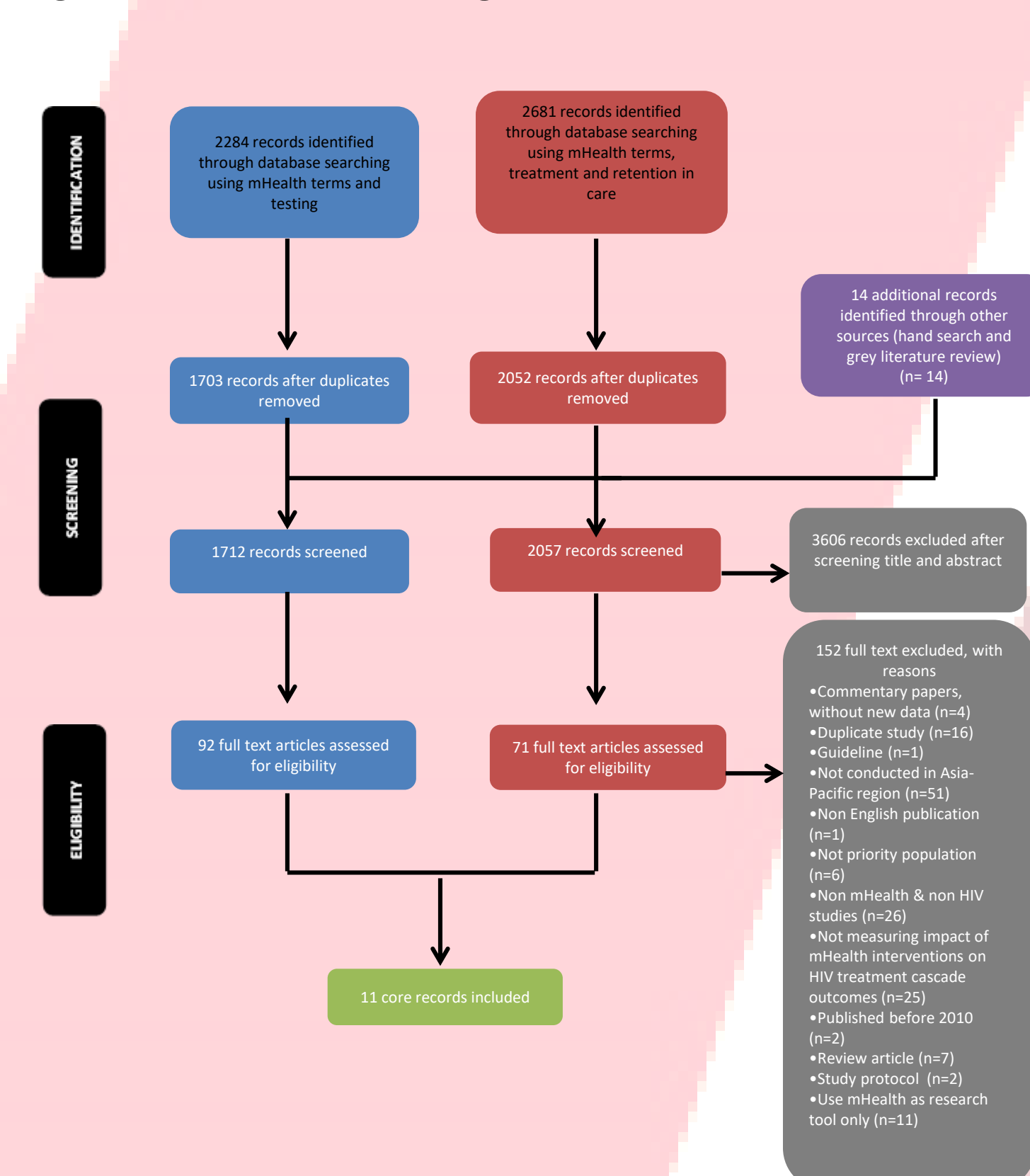


Figure 1. PICO Model

RESULTS

Of the 224 peer-reviewed articles identified for full text review, 16 studies from seven countries met inclusion criteria. The studies included in the analysis were conducted in seven Asia-Pacific countries and territories: Australia (n=4), China (n=6), India (n=2), New Zealand (n=1), Pakistan (n=1), Taiwan (n=1) and Vietnam (n=1). Target populations included MSM (n=7), PLHIV (n=8), and HIV positive MSM (n=1). Seven of the included studies were cross-sectional, seven were randomised controlled trials (RCT) and two were cohort studies.

Figure 1. PRISMA Flow Diagram



eHealth applications to increase HIV testing and linkage to care

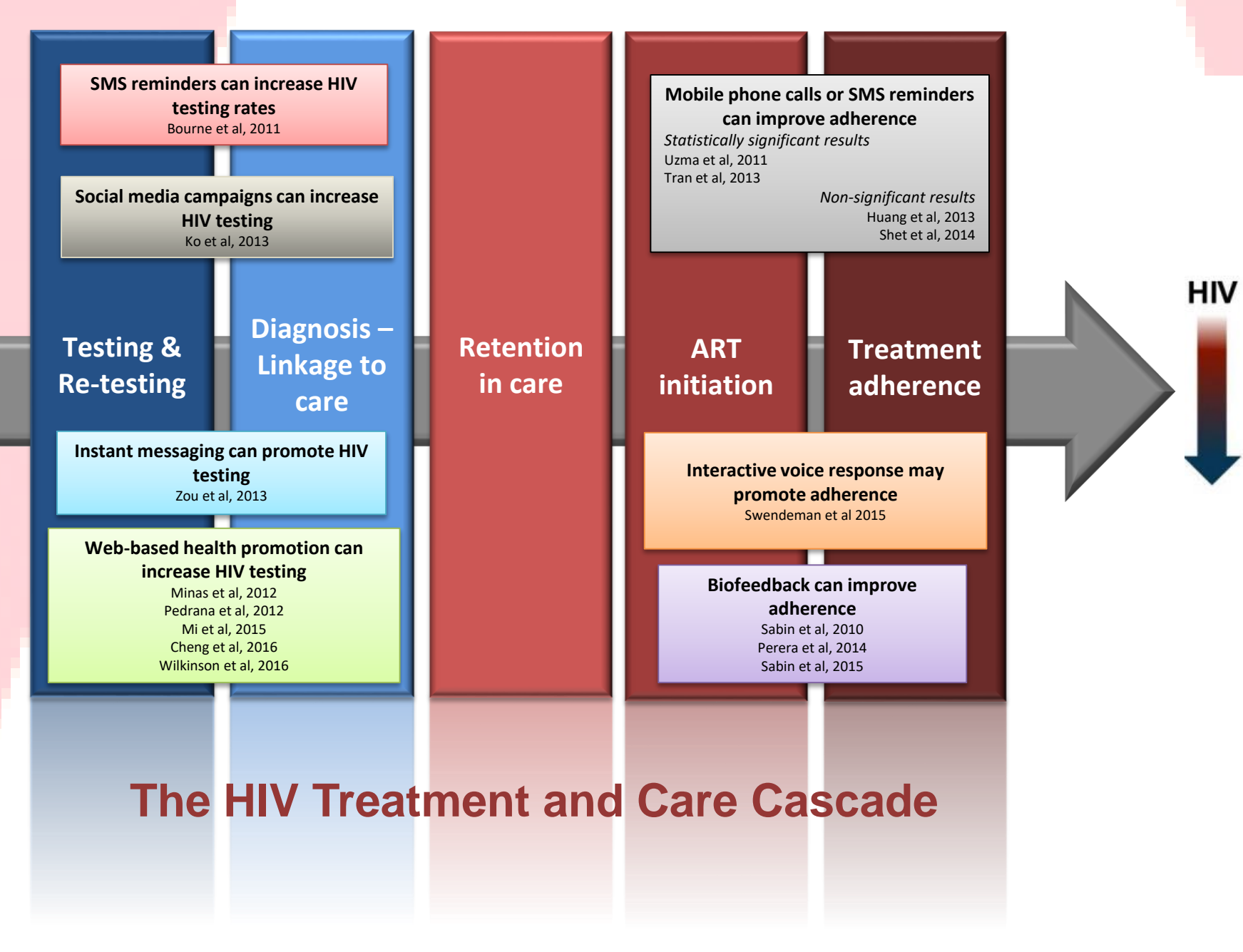
Six cross-sectional studies supported the use of eHealth, via text messages, instant messaging, social media and health promotion websites, to increase rates of HIV testing and re-testing among MSM.

eHealth applications to improve HIV treatment adherence

Evidence regarding the efficacy of eHealth interventions to improve ART adherence was mixed, where one RCT showed significant benefit of weekly phone call reminders on improving ART adherence. Three further RCTs found that biofeedback eHealth interventions that provided estimated ART plasma concentration levels, showed promising results for ART adherence.

DISCUSSION

To our knowledge, this is the first systematic review of the evidence for the application of eHealth to improve linkage to and retention in HIV clinical care in the Asia-Pacific region. This systematic review is significant in that it synthesises all the important findings related to eHealth for HIV, across the HIV treatment and care cascade.



DISCUSSION (CONT)

In a world where the development and expansion of digital technology are growing exponentially, eHealth interventions have an important role to play in the movement towards the end of AIDS. Regarding the first target of the UNAIDS 90–90–90 strategy, this review lends support to the effectiveness of SMS reminders, instant messaging and social media campaigns, at increasing HIV testing among MSM, particularly young MSM who are typically early adopters of new technologies. These types of intervention warrant further attention and application in particular among other priority populations who may be marginalised and thus harder to reach, such as SW, PWID and TG, especially given that eHealth interventions are evidenced to be feasible and acceptable to these groups.

Concerning the second and third strategy targets, treatment and viral suppression, there is mixed evidence for the efficacy of SMS and mobile phone call reminders to improve adherence.

Promising results regarding the efficacy of individualised real-time biofeedback merit further investigation to determine whether such intervention could be further enhanced and cost-effectively rolled out.

LIMITATIONS

This systematic review was broad in its scope enabling the inclusion of a variety of technology interventions to address the HIV testing, care, and treatment among HIV priority populations. However, this systematic review included the following limitations.

- The restriction to English language articles may have excluded non-English language literature from some Asia-Pacific countries, potentially omitting some relevant articles.
- All selected studies were from Asian countries, Australia or New Zealand, with none from Pacific Island countries or territories.
- Not feasible to perform a meta-analysis due to the variability of studies included.
- All eight of the studies concerning eHealth applications to HIV testing and linkage to care, were rated either weak or moderate in methodological quality, limiting the strength of any findings reported.
- All but one study that investigated treatment and adherence, described participants primarily as PLHIV, without further delineation according to priority population groups.

CONCLUSIONS

This review found encouraging evidence about how eHealth can be used across the HIV treatment and care cascade in the Asia-Pacific region, including increasing HIV testing and re-testing in priority populations as well as ART adherence.

Disclosure of Interest Statement:

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Limited References*: For full reference list see attached A4 sheet OR view article online <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5816561/>

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