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# Social innovation in sexual health: a scoping review towards ending the HIV epidemic

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**Abstract.** As donor financial support decreases, ending the HIV epidemic in Asia will require novel and sustainable approaches. Social innovation, a community-engaged process that links social change and health improvement, may be useful for helping to end the HIV epidemic in Asia. A scoping review to examine social innovation strategies in sexual health for the Asian region was conducted. The research identified focused on three types of social innovation: (1) microfinance; (2) social entrepreneurship; and (3) social enterprise. Microfinance provides financial opportunities (e.g. banking services, job opportunities) to spur local entrepreneurship and healthier behaviours. Social entrepreneurship uses business principles and tools (e.g. crowdsourcing, human-centred design) to improve health. Social enterprise is a business with a social mission. Further research is needed to measure the efficacy and cost-effectiveness of social innovation strategies in improving HIV services.

**Keywords:** Asia, community interventions, epidemic, health services, HIV/AIDS, HIV prevention, HIV testing, HIV treatment, social context, social innovation.

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#### Introduction

In 2018, Asia was home to nearly six million people living with HIV (PLWH).<sup>1,2</sup> Although recent data suggest that HIV prevention efforts have succeeded in reducing the HIV incidence rate by 9% between 2010 and 2018, Asia is falling behind other regions with regard to meeting the Joint United Nations Programme on HIV/AIDS (UNAIDS)' s 90–90–90 targets.<sup>1,2</sup> These targets call for 90% of all PLWH to be aware of their status, 90% of those who are aware of their status to start antiretroviral therapy (ART) and 90% of those starting ART to have suppressed viremia by 2030.<sup>3</sup> In 2018, ~69% of PLWH in Asia were aware of their HIV status, with

78% of these individuals on treatment. Of that group, 91% were virally suppressed.<sup>2</sup> Reaching individuals who are at greatest risk for poor HIV-related outcomes and engaging them in the HIV prevention and treatment cascade demands new approaches, particularly as we face reductions in donor support for the fight against the HIV pandemic.<sup>4</sup> One new approach is social innovation in health.

Social innovation in health is a community-engaged process that links social change and health improvement, while drawing on the diverse strengths of local individuals and institutions.<sup>5</sup> Recent data from Asia suggest that social innovation approaches may enhance HIV research and programming.<sup>6</sup>

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Existing sexual health research in this area has not focused on social innovation specifically.<sup>6</sup> The purpose of this scoping review is to characterise approaches to social innovation in sexual health in Asia.

### Methods

We used a standardised method for this scoping review, which included identifying a research question, selecting relevant articles and data charting, collating and summarising.<sup>7</sup> Although scoping reviews are similar to systematic reviews, in that they summarise the key literature on a topic to convey the breadth and depth of evidence in a particular field and seek to elucidate gaps in the literature, they do not provide the degree of detail seen in systematic reviews and are often selected when information on a particular topic is limited.<sup>7</sup> In this study, we synthesise research on social innovation in sexual health within Asia. Specifically, this review seeks to address the following questions:

- (1) What are examples of social innovation in sexual health within Asia?
- (2) What is the purpose and scale of social innovation approaches?
- (3) What types of social innovation in sexual health have been used in Asia?
- (4) What are the financial models involved in social innovation in health?

In this review, we focus on three types of social innovation that have been used in Asia: (1) microfinance; (2) social entrepreneurship; and (3) social enterprise (Fig. 1). Microfinance refers to a variety of financial services, including savings and credit accounts, insurance and cash transfers, intended to assist individuals who are impoverished or low-income with overcoming poverty.<sup>8</sup> Social entrepreneurship uses business principles to advance social causes by promoting the use of human, technological and financial resources that are both innovative and sustainable.<sup>9</sup> Social enterprises leverage business techniques such as marketing, franchising and consumer research to achieve social aims.<sup>10</sup>

We used PubMed, Google Scholar, Cochrane, Web of Science and EBSCO. The search was conducted in December 2019 and included original research studies related to social innovation in sexual health within Asia. The literature search included Medical Subject Headings (MeSH), Emtree headings and related text and keyword searches. Search terms included sexual health-related terms such as 'HIV, sexually transmitted infection(s), sexual behavior OR condom use' AND 'social innovation, social entrepreneurship, social enterprise, microfinance OR social business.' Eligibility criteria included the following: study design or contents involved in social innovation; included original data from Asia; study focused on HIV or sexual health; and methodology was described in sufficient detail. We defined social innovation as a community-engaged process that links social change and health improvement. Four team members organised the search according to the three main themes of the review. Discrepancies and

uncertainties were discussed with the research group until agreement was achieved.

## Results

Table 1 highlights three examples of microfinance, social entrepreneurship and social enterprise in sexual health in Asia.

### Microfinance

Microfinance strategies have been used to strengthen sexual health interventions by creating systems that empower individuals with financial tools or investments to help obtain financial independence.<sup>11</sup> In Asia, microfinance is frequently used in the context of HIV treatment and prevention,<sup>12</sup> particularly focusing on reducing risk among female sex workers.<sup>13</sup> Two common approaches for using microfinance to decrease HIV risk in the sex work industry include developing projects that: (1) empower individuals in the sex work industry to become more health-conscious entrepreneurs (n = 2); and (2) provide skills training to create alternative sources of income and reduce reliance on sex work (n = 3).<sup>14</sup>

## Microfinance to empower sex workers

The Sonagachi Project, one of India's longest running efforts to empower female sex workers, began in Calcutta's red-light district as a peer-facilitated condom education program in 1992. One of the project's original initiatives was paying peer educators US\$1 per day to travel between brothels to educate other female sex workers about HIV prevention.15 Over the years, however, the Sonagachi Project has evolved into a comprehensive sex worker-led community organisation.<sup>16</sup> The project organises and promotes community-level interventions that affirm the rights of sex workers through political advocacy.<sup>17</sup> The Sonagachi Project defines sex work as employment, alleviating some of the stigma associated with selling sex. Moreover, the project uses microfinancing techniques to empower sex workers by making them fiscally stable. Specifically, the Sonagachi Project used an investment system to create savings and banking co-operatives for female sex workers that enabled them to be independent entrepreneurs controlling their own business.<sup>16</sup> The project also unionised sex workers so they could support one another via interventions like shared child care. It went on to use its reframing of sex work as a business enterprise to form partnerships with local entities, including law enforcement agencies, stable clients and landlords to create safe spaces in which workers can operate.<sup>17,18</sup> Through such programming, the project was able to facilitate a sense of community among both female sex workers and local partners that paved the way for expansion of its health services. Overall, the Sonagachi Project's efforts have provided sexually transmissible infection (STI) testing and prevention education to more than 20000 sex workers, resulting in reports of lower rates of condomless sex and fewer new HIV infections among its participants.16,18

In addition, the Pragati Program is a female sex worker empowerment program in Bangalore, India, which provides sexual health education; microfinance training; STI prevention



Fig. 1. Types of social innovation in health.

and treatment services; and crisis response and drug rehabilitation services to reduce HIV/STI transmission risk.<sup>19</sup> The program enrolled more than 20 000 female sex workers over a 5-year period. The goal of the program was to strengthen women's capacity to be independent by providing them with financial tools to reduce their vulnerability while they continued their employment in the sex work industry. Both internal vulnerability (e.g. self-doubt, low levels of confidence and misconceptions about health) and external vulnerability (e.g. fiscal strength of customers/bosses, legal systems and social stigma) were addressed. The main microfinance

intervention, creation of savings and credit facilities along with financial training, was coupled with optional condom distribution and STI/HIV testing. Ultimately, this increased sex worker entrepreneurial independence and reduced violence. Moreover, over a 2-year follow-up period, the rates of condom use at last-paid sex increased from 78% at baseline to 100% after 4 years.<sup>19</sup> The STI incidence rates also significantly decreased among the cohort during this time.<sup>19</sup> Together, the Sonagachi Project and the Pragati Program suggest that microfinance can be an important tool to reduce sex worker vulnerability and advance HIV prevention efforts. Additionally,

Social innovation type	Intervention example	Impact
Microfinance	<i>The Sonagachi Project</i> A comprehensive sex worker-led CBO that organises and promotes empowerment-based interventions affirming the rights of sex workers through political advocacy.	<ul> <li>Unionised and offered child care.</li> <li>Re-framed sex work as a business enterprise to form partnerships with local entities, creating safer spaces in which workers can operate.</li> <li>Provide STI testing and prevention education to more than 20 000 sex workers.</li> </ul>
Social entrepreneurship	Crowdsourcing A form of social entrepreneurship in which a group of individuals solves a problem and then shares solutions with the public. One study, for example, sought to compare the effectiveness of a crowdsourced versus social marketing video on condom use among Chinese MSM. <sup>30</sup> In this non-inferiority RCT, MSM (aged ≥16 years) who reported that they had engaged in unprotected sex in the previous 3 months were randomly assigned to watch either a crowdsourced video that was selected during an open contest or a social marketing video developed by a professional organisation	<ul> <li>Results indicated that the crowdsourcing video was equally effective in reducing instances of unprotected sex within this population.</li> <li>The crowdsourcing intervention was significantly cheaper than the social marketing intervention.</li> </ul>
Social enterprise	Blued A social networking app offering online dating and livestreaming services, as well as HIV prevention and testing services. Blued's HIV testing campaign involved: providing in-person promotional materials at Blued's six HIV testing clinics, an electronic banner advertisement on the phone application's launch screen and embedding an appointment- making platform within the application.	<ul> <li>The HIV testing campaign was linked to an increase in HIV testing at six Blued clinics.</li> <li>This project's success highlights the potential for geosocial networking applications to be used effectively in public health campaigns.</li> </ul>

#### Table 1. Social innovation interventions related to sexual health in Asia

CBO, community-based organisation; STI, sexually transmissible infection; MSM, men who have sex with men; RCT, randomised controlled trial

both of these initiatives were rooted in the community, with local leaders involved in every stage from development to implementation. The community-centred approached has enabled these programs to be sustainable long after their initial donor-funding elapsed.

## Microfinance for skills building among sex workers

Another group of researchers in India took a different approach to mitigating HIV risk among female sex workers. This group hypothesised that the female sex workers are at the centre of the HIV epidemic, with their infection risk being primarily economically motivated. Thus, their study examined the effect of obtaining vocational skills on the likelihood of exiting sex work as a means of decreasing HIV acquisition risk.<sup>20</sup> They separated 100 female sex workers into one of two groups with the first group receiving HIV prevention education alongside English-language lessons and the second group receiving HIV prevention education alongside vocational skills training. The investigators found that at the 6-month follow up, women in the group receiving vocational training reported less income from sex work, an increase in their nonsex work income and a decrease in the number of paying partners as compared with their counterparts in the Englishlanguage lessons skills training group.<sup>20</sup> Additionally, those in the intervention group had a significant decrease in total number of sex partners, having two less sex partners per month than the control group.<sup>20</sup> Condom use during sex was similarly high in both groups.

A randomised clinical trial in Mongolia also investigated whether female sex workers reduced paid sexual activity if provided with alternative skill sets for income generation.<sup>21</sup> The treatment group received both HIV-risk reduction education and a 34-session savings-led microfinance course, whereas the control group received only HIV-risk reduction training. At the 6-month follow up, the intervention group participants reported fewer paying sexual partners and were less likely to report condomless sex.

Given evidence supporting the ability of microfinance programs to reduce sex work, Project Nova went a step further to examine HIV/STI among female sex workers who inject drugs in Khazakstan.<sup>22</sup> Study participants were separated into two groups. The intervention group received HIV-risk reduction education, vocational training, financial literacy training and matched savings accounts pending sufficient session attendance. The control group received HIV-risk reduction training. Learning session only attendance was high among both groups, with 76% of female sex workers in the intervention group qualifying for matched savings accounts.<sup>22</sup> Preliminary findings suggest that female sex worker attendance at microfinance sessions was high and final trial data are forthcoming. Taken together, these three studies suggest that microfinance tools may reduce HIV risk by creating alternative income sources for female sex workers.

#### Social entrepreneurship

If entrepreneurship describes the activity of establishing a profitable business, then social entrepreneurship often describes innovative activities that utilise business principles to address social challenges, generate or improve social wealth and have objectives that are primarily social.<sup>23,24</sup> Within a sexual health framework, social entrepreneurship uses business models to develop novel sexual health services to meet the needs of a target population. Although there is a growing number of approaches to social entrepreneurship, including crowdsourcing, social marketing and conditional cash transfers, most have not been widely adopted or systematically assessed.<sup>25</sup> In this section, we highlight sexual health-based studies using crowdsourcing, an approach where a group of individuals solves a problem and then shares solutions with the public,<sup>26</sup> to reduce sexual risk and promote sexual health. We describe three studies conducted in China that used crowdsourcing to increase community involvement in HIV testing (n = 2) and to promote condom use (n = 1) among men who have sex with men (MSM).

#### HIV testing among MSM and transgender women

The purpose of this study was to evaluate the efficacy of using a crowdsourcing contest to increase HIV testing among Chinese MSM and transgender women who had not previously been tested for HIV.<sup>27</sup> For the intervention arm of this study, the team partnered with community-based organisations focused on gay communities to solicit one-minute promotional videos that encouraged first-time HIV testing within the target population. They posted the call for contributions on web portals popular among Chinese MSM and transgender women and hosted a national teleconference to further publicise the contest. An independent judging panel consisting of both experts and community members evaluated and selected the winning entry. In the randomised controlled trial (RCT) phase of this study, the team hired a local public health expert to develop a promotional video matching the criteria of the open contest. The RCT ultimately compared the efficacy of the crowdsourced video to that of the social marketing video. A total of 721 MSM and transgender women who had never been HIV tested were randomly assigned to either view the open contest video or the social marketing video. Study findings suggested that the open contest video and the social marketing video were equally effective in increasing first-time HIV testing among Chinese MSM and transgender women. However, the open contest video was 45% less expensive to produce than the social marketing video.<sup>28</sup>

#### HIV testing among MSM

This study aimed to evaluate the effect of a stepped-wedge crowdsourcing intervention on HIV testing uptake among MSM in eight Chinese cities.<sup>29</sup> The intervention comprised three components: (1) a national open contest seeking images that promote HIV testing via social media and/or in-person events; (2) a designathon where self-selected teams created a HIV testing strategy; and (3) a series of local open contests seeking personal stories about HIV testing experiences. One-thousand three-hundred and eighty-one MSM who had not been HIV tested in the past 3 months enrolled in the study. Each participant was randomly assigned to a group that received the intervention at one of four different time points and was assessed over a 12-month follow-up period for any

behavioural change. Study results indicated that the crowdsourcing intervention was associated with greater uptake of both HIV facility and self-testing among MSM in targeted cities.

#### Condom use among MSM

This study sought to compare the effectiveness of a crowdsourced versus social marketing video on condom use among Chinese MSM.<sup>30</sup> In this non-inferiority RCT, MSM (aged  $\geq 16$  years) who reported that they had engaged in unprotected sex in the previous 3 months were randomly assigned to watch either a crowdsourced video that was selected during an open contest or a social marketing video developed by a professional organisation. A total of 1173 men were recruited, with 67% completing both baseline and 3-month follow up surveys. Results indicated that the crowdsourcing video was equally effective in reducing instances of unprotected sex within this population; however, the crowdsourcing intervention was significantly cheaper than the social marketing intervention.

#### Social enterprise

Social enterprises are organisations that utilise social entrepreneurship and have missions that are primarily social. These organisations often have a double bottom-line in which their mandate is to both generate revenue and impact social change; however, the revenue from these organisations is often reinvested into the company to achieve their social missions.<sup>31</sup> Social enterprise has been used to optimise lesbian, gay, bisexual, transgender and queer (LGBTQ) (e.g. social networking mobile phone application) and family planning services (e.g. community-based service delivery) in Asia.

#### LGBTQ social networking app

Men who have sex with men are increasingly using geosocial networking apps to find sex partners, particularly in Asia where discrimination and stigma against the MSM community are still substantial. Prior research demonstrates that social networking apps are acceptable and feasible platforms to promote HIV/STI testing among MSM.<sup>32-35</sup> Blued is the largest social networking app for MSM in China, registering 40 million users in 2019. In addition to online dating and livestreaming services, Blued provides its users with HIV-prevention services and has affiliated HIV testing sites where men can be locally examined. The US Centers for Disease Control and Prevention conducted a study examining the efficacy of Blued's HIV testing campaign over a 2-year period.<sup>34</sup> Blued's HIV testing campaign involved: providing in-person promotional materials at Blued's six HIV testing clinics; an electronic banner advertisement on the phone application's launch screen; and embedding an appointment-making platform within the application. The study found that the number of HIV tests completed by MSM at the six Blued clinics significantly increased following implementation of the campaign. Moreover, nearly half of those tested at the clinics reported it was their first HIV test.34

The efficacy of Blued's promotional campaign in advancing HIV-prevention efforts has implications for future endeavours. This project's success highlights the potential for geosocial networking applications to be used effectively in public health campaigns. Additionally, it suggests the potential for combining private companies, such as Blued, with social missions to achieve sustainable interventions.

# Contraceptive social enterprise

In addition to mobile apps, social enterprise has been used in family planning and contraception services. Asia has an unmet need for modern contraception that contributes to the region's HIV incidence and prevalence.<sup>36,37</sup> DKT International is a social marketing enterprise dedicated to HIV prevention and family planning through promotion and distribution of low-cost, high-quality condoms. DKT Indonesia is one of the most fiscally successful branches of the organisation, annually recouping all of its expenses with sufficient excess to support other DKT programs in low- and middle-income countries. DKT International aims to increase safe sex practices, such as condom use, among youth in a culturally acceptable and age-appealing manner.<sup>38</sup> DKT Indonesia gathered insights from focus groups and local youth-oriented non-governmental organisations to determine the barriers to condom use among the young population. They discovered that safe sex was perceived as inconvenient and unpopular, so they created a campaign to market their condoms in a more appealing manner. They branded their condoms with packaging design that specifically targeted a younger demographic. The company focused distribution on minimarkets, 24-h convenience stores, cafes, bars, and clubs locations youth more frequently visited and where they reported feeling more comfortable purchasing condoms. DKT Indonesia used a text messaging campaign to deliver daily safe sex tips and information to subscribers, increasing their engagement with Indonesia's youth. TV, radio and print advertising were also used to generate demand. As a result, DKT Indonesia's condoms became the most recognised youth condom brand in Indonesia. In 3 years, the company gained 10% of the market share and increased overall condom purchases by 22%.38

DKT Indonesia is a unique social enterprise in that it is both consumer- and sales-driven, using traditional for-profit business strategies (e.g. commissioning consumer research, multimedia commercials, negotiating financial benefits with franchisers) to achieve social aims.<sup>39</sup> It demonstrates how social enterprise tools can be used to create fiscally sustainable public health solutions.

#### Discussion

Social innovation approaches may be useful as Asia plans strategies to end the HIV epidemic in the region. Microfinance, social entrepreneurship and social enterprise could all accelerate HIV service delivery. Realising the full potential of these approaches at the country-level will require buy-in from local communities and the public sector.<sup>6</sup>

Local communities are a key stakeholder in social innovation. Strong community ownership of projects can contribute to long-term sustainability. As demonstrated with the Sonagachi Project, approaches that enable community members to generate ideas and lead the initiatives themselves create trust and the potential for enduring impact. Moreover, when attempting to solve social problems, understanding and working within the local cultural context is essential. Social innovations like DKT Indonesia that engage targeted populations in the design and implementation phases may be useful in a wide variety of local cultural contexts.

Governments are another key stakeholder in social innovation approaches. Many interventions targeting sexual health and HIV service delivery in Asia are working with marginalised populations who face formal and informal condemnation from the state. Government buy-in provides the authority and protection needed for the key population to safely engage in these health interventions. For instance, the Sonagachi Project partnered with local law enforcement to decrease stigma surrounding sex work and create a supportive legal environment in which sex work could be re-framed as a business enterprise.<sup>17</sup> In the Chinese HIV testing via crowdsourcing project, eight public health departments agreed to adopt these new approaches in their setting. This level of government partnership and support was essential for organising the RCT.

Social innovation approaches may also develop new financing mechanisms to increase the likelihood of sustainability. Social innovations such as Blued and DKT Indonesia that have a built-in funding mechanism are more likely to be sustainable over time. In addition, microfinance programs have the potential for income generation that decreases reliance on external donors. These new models suggest the need for more formal research into the costeffectiveness of these social innovations in health to understand financial benefits and risks.

Although the potential for social innovation in addressing HIV service delivery in Asia is explored here, there are several limitations to this scoping review. First, there is limited evidence supporting the use of social innovation approaches and more data are needed. In settings where evidence has been generated, further implementation science research is needed. Second, we did not examine public-private partnerships, partnerships created between government and private industry in which the private party bears larger fiscal and management responsibilities.<sup>24</sup> There is greater heterogeneity in these approaches and generally less public health evidence of impact. Third, the nature of social innovation suggests that it is constantly evolving; as such, we often lack standardised definitions for different types of social innovation. For example, the definitions of social entrepreneurship and social enterprise contain some overlapping elements; however, the former describes innovative activities, whereas the latter describes the organisations that conduct those activities.<sup>31</sup> Finally, digital social innovation is important and under-represented in the cases identified here.

# Conclusion

Social innovation is a critical concept in public health practice and research. Its application in addressing health obstacles, particularly in resource-limited settings, is still evolving. In this article, we identified the social innovation approaches towards the elimination of HIV in Asia. Microfinance, social entrepreneurship and social enterprise may be useful for improving sexual health in this region. As the amount of global funding directed at the HIV epidemic decreases, finding sustainable solutions is critical to sexual health, especially in low- and middle-income countries. Although there is a limited amount of research in this sector, the early successes of these innovative approaches highlight the potential for these methodologies to be more broadly used to support efforts to reach 90–90–90 targets of eliminating HIV transmission by 2030.

# **Conflicts of interest**

The authors declare that they have no conflicts of interest.

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