ORIGINAL PAPER

ENGAGE-A3 model: communication risk to involve Myanmar workers in AIDS prevention

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Abstract

Introduction: Communicating health information to Myanmar transnational workers (MTWs) poses several challenges, including language barriers, unsatisfied needs for health information, use of inappropriate channels or time of communication, and unsustainable outcomes of intervention. The human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) most at-risk group is composed of migrants worldwide, including Thailand, where HIV prevalence is high. This study aimed to develop an AIDS risk communication model for MTWs in Thailand.

Material and methods: Researchers created a proposed model on the basis of lessons learned and literature reviews. A focus group discussion with a panel of experts, in either working with migrants or communicating health risk, was conducted to receive feedback on improving the proposed model.

Results: The findings revealed that ENGAGE-A3 model (Earning trust, ENvironmental scanning, Getting local help, Action, Gamification, and Evaluating) can lead to assessment, awareness, and advocacy of AIDS risk in MTWs. The total mean score of experts' opinions on the appropriateness of ENGAGE-A3 model was at a level of "very appropriate", with a mean score of 4.26.

Conclusions: The obstacles to communicating risk to MTWs can be reduced by using the model found in this research, while the strengths of community were utilized to maximize impacts of intervention.

HIV AIDS Rev 2022; 21, 2: 144-154
DOI: https://doi.org/10.5114/hivar.2022.115679

Key words: HIV/AIDS, migrants, engagement, risk communication, communication barriers.

Introduction

One of the main public health concerns globally is represented by human immunodeficiency virus (HIV) infection, which leads to acquired immune deficiency syndrome (AIDS). According to some estimations, approximately 76.1 million people have been affected by HIV until 2017, with 36.7 million people living with AIDS in 2016 [1].

Since the fast-spreading virus was first reported in Thailand in 1984, multiple attempts have been made to control its' spread [2]. These attempts were motivated by the fact that Thailand had been one of the Asian countries with the highest prevalence of HIV for many years, although the prevalence among Thais decreased from 1.8% in 2003 to 1.1% in 2016, with more than half of the patients receiving appropriate antiretroviral treatment [1]. However, more than 450,000 people in Thailand are still affected by the virus. According to reports, the majority of infected people belong to a younger population as well as migrants [3-5].

Lifestyle of immigrants

Labor migration plays an important role in HIV transmission in Thailand and worldwide. Various circumstances of the life of migrants may contribute to the above-mentioned

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Article history:
Received: 24.01.2021
Received in revised form: 13.09.2021
Accepted: 24.10.2021
Available online: 18.04.2022

relationship. An essential factor that should be considered in the Thailand context is the language: most of immigrant workers present better spoken than written language skills, with both of them being inadequate to follow complex instructions or discussions, which are mandatory for acquiring appropriate lifestyles in Thai culture [6]. All of these contribute to the fact that the migrant population, which mostly follows conservative and traditional values, is hard to reach and somewhat excluded from the mainstream media due to language barrier that, along with family pressure and inadequate social networks, contributes to their social exclusion [2, 7]; thereby, making it hard for them to reach relevant information and consistently exhibit healthy behaviors [8].

Approximately, 3.7 million migrants currently live in Thailand, constituting for approximately 8% of the total labor force [2], among which, 1.6 million have non-resolved legal status. Most of migrants came from Myanmar due to various reasons, such as unfavorable economic situations and political pressures [9]. Only 91,008 of migrants have work permits in professional and skilled occupations, with more than 60% of them coming from well-developed countries, such as Japan and the UK [2]. This indicates that the vast majority of immigrants are forced to work in low-skilled occupations, such as agriculture, seafood industry, or mining [10]. Additionally, it has been affirmed that migrants commonly work in unsafe conditions, with inadequate or no protective equipment, and are uninformed on possible safety hazards, with a very limited access to health-related services (resulting in various injuries and illnesses), social security, and legal protection, while facing negative attitudes toward them by the locals [11, 12]. This is also reflected in their motivational preference towards satisfying basic physiological needs, and personal and their families safety [13]. Although there have been attempts to provide better legal status for migrants, the number of migrants benefiting from these changes is still unknown, with a special emphasis on those with irregular status who are not even eligible to participate in social security funds [2]. These job-related risks have been categorized as risks during recruitment (e.g., illegal recruitment agencies and intermediary parties that stem from long-lasting and expensive legal procedures), risks during employment (e.g., inequitable working conditions that could have a detrimental effect on the health of workers, 12 hours of daily work, non-paid overtimes, or even restriction of movements by retaining personal identification documents), and risks upon termination of employment (e.g., sudden loss of income that leads to illegal work to earn enough money for survival of their families), with emphasis on vulnerable groups of migrants, such as women or children [2]. Even though legal migrant workers are in theory protected by the same legislations as nationals under Thai labor laws, there are no consistently available means they could use to file their complaints with labor authorities on the local level.

In combination with an inadequate and unhealthy lifestyle focused on earning enough money for basic needs, this could be a factor that contributes to higher incidence of diseases, accidents, and deaths among migrants [11]. Before 2013, only documented migrants were eligible to use health insurance schemes. Nowadays, all migrants, regardless of their legal status, can be enrolled in migrant health insurance schemes; although the relatively high price of the service substantially limits its' accessibility [2]. Another limiting factor is the nature of their work, which sometimes often includes relocations, which make various healthcare services harder to reach, especially if the status of 'ill' could lead to stigma or significant loss of financial resources.

The above-mentioned circumstances can lead to various threats to reproductive health of migrants, including unmet needs for family planning, incorrect use of contraception and unwanted/ adolescent pregnancies, poor health of mothers and their children, gender-based violence, and high prevalence of sexually transmitted diseases (STDs), such as HIV and AIDS [14, 15]. Even though data on mortality of migrants are sparse, accessible data indicate that most cases of death (77%) occurred in the younger migrant population (< 34 years old), with AIDS being considered as the second most often cause of death among migrants [2]. Given that HIV and AIDS had been practically neglected until the first Myanmar National Strategic Plan for HIV and AIDS (2011-2015), many of these migrants are unaware of the risks related to the disease [16]. Systematic reviews of research have highlighted various activities and problems that migrants conduct or face, including sexual activities without condoms, multiple partners, inadequate or low HIV/AIDS knowledge, perceived risk of being infected by HIV, sexual exploitation, and denial of healthcare, all of which can result in increasing risk of HIV [17-19]. Accordingly, it has been noticed that provinces populated with largest number of migrants surpass other regions with respect to prevalence of HIV [20], whereas according to another research, 80% of male migrants in the regions of Ranong, Samut Sakhon, and Tak, have revealed that they were not using any contraception with their wives or partners, with nearly 15% of them employing condoms and 4% practicing withdrawal as a method of contraception [16].

Although migrants are somewhat adapted to Thai culture, there has been little or no initiative to address the issue of HIV/AIDS among them when compared with the Thai population [9]. Additionally, most of these workers usually have to work extra hours, have limited amounts of free time, and have various restrictions due to language barriers and costs of traveling [2], which consequently minimize their opportunities to learn more about HIV/AIDS. A special point in case is illegal immigrants, whose movements and flow of information are even more restricted due to the possibility of getting arrested [2, 7, 21]. It has also been affirmed that having a secondary education and not having a work permit were the strongest predictors of HIV testing among migrants, with only 5.3% of the sample reporting tested during their lifetime [22].

Source of the problem

Even though the above-mentioned arguments may appear quite pessimistic, attempts have been made to improve healthy lifestyles and HIV/AIDS-related knowledge in the migrant population. The first step in achieving such a crucial goal was to define where the problem in communication occurred. A previous research has validated that migrants in Thailand are interested in learning more about HIV and AIDS, especially about risks, causes, symptoms, and prevention [23]. Nonetheless, those authors have verified that inadequate linguistic skills of migrants pose a great barrier, making it almost impossible for them to reach relevant information. Fear of stigmatization should also be mentioned as a critical factor for migrants in deciding whether to ask certain questions or not [24]. In addition, there was no mandate by the government that would demand communication between public health officers and migrants regarding HIV/AIDS, which resulted in 77.4% of public health officers who had not communicated about the HIV issue with migrants even once during the previous year [25]. Cultural diversity makes it also hard for nurses and medical staff to understand the needs of migrants and act accordingly, especially when combined with language barriers [26]. The discussed pieces of research approximately delineate the complexity of the situation: there are migrants interested into receiving more information on HIV/AIDS, but fail to do so due to conservative values, fear of stigma, and language barriers. Conversely, there are public health officers who do not recognize migrants as an element of the population with higher HIV/AIDS risk, and make no additional attempts to communicate relevant information. Therefore, this situation indicates the relevance of using adequate media to communicate HIV/AIDS-related information, media that would facilitate public health officers and other health-related personnel to distribute information, and also make it easily reachable and comprehensible for migrants and other targeted audiences.

These ideas served as guidelines in forming a public engagement model appropriate for communicating HIV/AIDS-related information to Myanmar transitional workers, which was validated by experts in this research. Unlike previously mentioned models, this specific and theoretically founded model, ENGAGE-A3, comprises the concept of gamification and utilization of social media sites, which makes it easier to build rapport with younger adults, who are the focus of the intervention.

ENGAGE-A3 model

ENGAGE-A3 model of public engagement comprises six elements that are briefly described in the rest of this subsection.

1. Earning trust: This is the first stage that is composed of persuading stakeholders using ethos, logos, and pathos. It is a classic persuasive communication technique by Aristotle that was reviewed previously [27]. Moreover, the public health communicators must build a rapport [28] and be dependable [29] to obtain the agreeing attitude of the community towards the program and public health communicators.

2. Environmental scanning: Once the public health communicators acquire the so-called "permission" to enter the community, they must collect data on HIV/AIDS prevalence and profile target group. Attention must be paid to time and space where the communication efforts are held [30-32].

3. Getting local help: The program will be more sustainable if there is participation of local community members. Public health communicators must ask for assistance from community members. Further, they must first approach opinion leaders and ask the opinion leaders to find potential community members, whose profiles are similar to the target group to work as health volunteers. It is recommended that local health-related entities are requested to be involved as mentors to link the health-related entities and health volunteers [31, 32].

4. Action: The public health communicators must guide the group of health volunteers to plan their communication efforts, and to specify the roles and responsibilities of each member [32, 33].

5. Gamification: As the workers have a diverse level of awareness of AIDS risk, it is advisable that integrated communication activities be created to attract the information needs of different target groups. The activities can be offline and online. The offline activities include an intensive workshop for health volunteers, demonstration of condom use, quiz games, posters, and opening and closing ceremonies. The online activities can use Facebook pages, publish AIDS education videos, utilize pictogram images, and answer fan questions [34-36].

6. Evaluation: The public health communicators can measure outcomes of the program using indicators, such as knowledge, attitudes, behavioral change, and satisfaction (KAP+S). Attitudes can also be measured on the basis of framework of health belief model [37-41]. The process and output evaluation under Stufflebeam's CIPP model can be useful [42], and the access to HIV/AIDS voluntary counseling and testing is also another indicator that should be added if possible [43].

The effects of ENGAGE-A3 model can be divided into three aspects as follows:

1. Assessment. A change in the level of risk assessment is fundamental. The target group would be informed on about AIDS that is necessary to assess their risk. The public health communicators must cover AIDS opportunities, severity, benefits, and barriers to taking AIDS preventive measures, i.e., correctly using condoms and getting HIV tests [44].

2. Awareness. A change in the level of being aware of risks is the middle level of change. The smaller number of community members turn aware of the risks. The public health communicators must provide opportunity to discuss the risk reduction measures among the community [45, 46].

3. Advocacy. A change in the level of advocacy is the high level of change. The small group of community members who are very active becomes volunteers to help the public

health communication regarding HIV/AIDS. After intensive workshop training, they can provide essential consultancy on HIV/AIDS, demonstrate the correct use of condoms, emcee the quiz, invite their peers to click 'like' to campaign Facebook page, arrange activity booths, publish posters in high visibility areas of a factory, and read the provided AIDS education scripts on loudspeakers of a factory [47-49].

Literature review

Psychological reactance and its similarity to health-related issues

Psychological reactance or tendency to defy commands and recommendations to retain perceived freedom of choice has been discussed as an important factor in health-related services. According to Brehm and Brehm (1981; as cited in [50]), four elements are crucial for reactance to appear: an individual should feel free and value his freedom (1) before it is invaded from the outside (2). Such an invasion of freedom evokes reactance (3), which leads to attempt(s) to regain freedom (4), or in the context of health-related services, disobeying the recommendations of experts. The researchers agreed on interconnected cognitive–affective model of psychological reactance [51], according to which severity of health condition and magnitude of the request, interaction, and perceived threat, lead to reactance that is correlated with anger and negative cognitions. Reactance formed as a combination of emotions and cognitions was a strong predictor of attitude towards an issue, which consequently predicted behavioral intentions of individuals [51]. This is an essential factor in every campaign because it implicates that individuals will resist any campaign they perceive as a threat to their freedom. Given that freedom is required to live according to the values and interests of an individual, public campaigns must achieve connections with the audience on as many levels as possible to successfully disseminate information without unplanned oppression due to miscommunication. Another component that is considered critical is the culture of the desired audience, as cultural inappropriateness can lead to psychological reactance, while culturally correspondent contents can foster cooperation [52, 53]. Because younger generations are generally using modern technology, one possible way to make information more approachable for them is to utilize these potential means of dissemination.

New media and public engagement

New media gather a massive audience by allowing them to view, share, and comment on various contents. As such, it has a great potential to be utilized in various public campaigns, including those regarding health-related issues, such as HIV/AIDS. One such example was a radio-drama program in Ethiopia called "Journey of life," which was an educational and entertaining radio campaign with a goal of educating the audience about HIV/AIDS [54]. The results of the study confirmed high listenership rates and very good memory of the story, while the audience liked the program and exhibited a strong desire to change their behavior regarding the promoted information. This magnitude of effect indicates the vast possibilities new media have as potential facilitators of changing health-related behaviors.

Social media sites, which allow users to view, comment on, upload, or create contents, can be used in forming online communities, fostering socio-emotional support regardless of geographic location, with additional benefit of engaging and accessing information anonymously. These were only some of the reasons why social media sites were the focus of attention of different researchers, who have exhibited its' positive effects in distinct studies [55-57]. Although using modern technology for distributing information has many advantages, it also has some drawbacks that should be considered. Generally, these drawbacks can be summed up as technological issues, high expenses, privacy risks, and lack of physical interaction [58-60], all of which can affect the relationship between the sender and recipient of the information. Additionally, with no feedback, campaign leaders cannot be completely sure if their project has reached an expected scope, and information cannot be adapted to particular recipients enabling them to understand and evaluate information. Although public health workers [25] and migrants [9] preferred group health education as a medium of distributing HIV/AIDS information, and migrants were also considerably more open to using social media sites to receive informative contents. This indicates the unused potential of social media sites in promoting health-related behaviors.

Gamification is another popular concept developed thanks to modern technology, which turns various tasks into fun games. As such, it has already found its place in many branches of the health industry, ranging from physical to cognitive and socio-emotional health [61].

Audience engagement models

The key component of every successful public campaign is the engagement of the audience. In the last few years, various models of community engagement have been formed, and many of them have focused on health-related issues. For instance, Reynolds and Seeger [52] defined several important features of risk communication: messages should be persuasive and focused on negative consequences and how to reduce them, published frequently and routinely with focus on the sender, based on scientific data, and conducted by scientists in a controlled and structured form. In light of their recommendations, Witte and Allen [62] found that strong fear appeals delivered alongside high-efficacy messages (i.e., messages that are strong enough to convince the audience in their ability to perform the behavior required to cease or lower the threat) led to positive behavioral changes, while reactance and oppression were strongest when strong fear appeal was accompanied by low-efficacy messages (i.e., messages that do not clearly denote what can be done to minimize the threat, and if the audience can exhibit these behaviors), whereas weak fear appeals caused no change. One review has identified several important features of modern

public health campaigns related to HIV/AIDS: audience segmentation was applied to adjust the interventions, campaigns were focused on behavioral changes (not just the distribution of knowledge), behavioral theories were used as foundations for campaigns, messages were widely presented and exposed, and strong research designs were employed to evaluate the outcomes, involving cognitive and behavioral measures of outcomes [63]. Hinyard and Kreuter [64] highlighted the important role of narratives in health-related campaigns as to encourage the audience to connect to people whose stories are being told, which allows the audience to put themselves in the shoes of another person to feel some of the experience that the person had survived to notice the reality of the threat (i.e., previously discussed strong fear appeal), and what it was like to make a change (i.e., previously discussed high-efficacy message). According to the authors, for this approach to achieve results, the audience must establish a rapport with the personal story that is being presented to them. Nevertheless, as Airhihenbuwa and Obregon [65] emphasized in their review, cultural context and individual characteristics should always be considered, as there is no cross-culturally effective intervention. Therefore, the authors have suggested that cultural linkages should be made whenever possible to raise the effectiveness of intervention by adapting the recommendations [52] to the cultural and socio-economic context of the audience.

Models of information seeking and providing

Some of the models were focused on activating the personnel, and showed that empowering leadership style results in empowered employees, who were more engaged and affectively committed, which ultimately led to better results [66]. Similar results were also found in the context of engaging youth, with emphasis on individual connections, common sentiments, and encouraging activities [67].

Contrarily, some researchers have focused on the models of information seeking, and showed that attitudes toward seeking information, effective risk responses, perceived control of seeking, and seeking-related subjective norms predicted information-seeking intent in a health-related context [68, 69]. Interestingly, knowledge insufficiency did not play an essential role in that model, which could be hypothetically explained by a lack of perception of knowledge insufficiency. An older model suggested that the change should be achieved in three steps: first, the risky behaviors should be considered as problematic (informational component); second, a commitment should be made to changing these high-risk behaviors (motivational component); and third, finding solutions for the problem (behavioral component), indicating that gaining insight into how problematic certain behaviors are is the first step to change them [70]. These authors have also emphasized the relevance of the availability of health-related services because the initiative to solve the problem will fade if not supported by adequate medical information and treatments. According to the combination of the two mentioned models, due to conservative values and norms [24, 26], and the mentioned unperceived knowledge insufficiency and possibly illegal status [2], migrants might find it difficult to ask health-related questions, while public health officers are not adequately empowered and affectively committed (i.e., are not informed about the relevance of the situation and adequately motivated to act to start resolving it).

Complex models of public engagement

To cover the problem from both points of view, more complex models of public engagement were developed. One such model suggests that communities and agencies, whose members should be adequately facilitated, supported, resourced, and trained, are supposed to work together or to reach health-related tasks [71]. Health-related tasks should include raising awareness, reducing stigma, denying and being fearful, assessing needs and increasing trust, articulating needs, building capacity and developing the workforce, sustaining engagement, and generating ownership by involving local people. All of these combined should lead to more equitable services, which would manifest itself in improved access to health services, better experiences, and more favorable outcomes [71]. Similarly, Ukuphepha child study community engagement model [72] mobilizes the community through pathways that promote prevention and reduction of injuries, safety, and peace. while emphasizing a relationship with the community and informed consent. These pathways were defined as relationship building, community-centered learning, social justice and contextual congruence, building of democratic tradition, strengthening case for community services, and affirming social economy, all of which was expected to lead to various activities related to engaging the audience and promoting their ownership of the community action, such as creating awareness and endorsing the program as well as identifying and utilizing community assets, among others.

As it can be noticed from the descriptions, both approaches use multiple ways of activating the community and imply that public health personnel should adapt to the values and culture of the targeted audience to make the engagement appear closer and acceptable for them. In addition, the feeling of ownership is emphasized, which indicates congruence between the beliefs of an individual, and actions are in line with considerable research exhibiting the relevance of intrinsic motivation in everyday life [73, 74].

The review of interventions applied to lower HIV/AIDS risk has shown promising results [63]. However, as Munro, Lewin, Swart, and Volmink [75] discussed, evidence of the effectiveness of such programs is still insufficient, although new promising models are being formed every day. Such statements indicate that there is still room for improving older models, which could lead to better results and broader applicability of the interventions. One of such models is supposed to be ENGAGE-A3, which incorporates both traditional approaches to behavior changes (e.g., group educations) and benefits of modern technologies (e.g., gamification and social media sites) to provide a comprehensive

framework to foster the change on both cognitive and behavioral levels. Nonetheless, to evaluate its' appropriateness for further application and to offer potential solutions for possible drawbacks, a group of experts was presented with the program, with their opinions being discussed in the rest of this paper.

Material and methods

The researchers conducted focus groups. Ten participants comprised professors at a university with more than 10 years of experience, professionals with more than 10 years of experience in communication, public health, migrants, and health-risk reduction. Moreover, the researchers presented methods and results of their previous studies, and ENGAGE-A3 model that was derived from empirical and theoretical approach. The participants were requested to express their opinions, suggestions for implementing this model, and finally, consensus of endorsing the model. The researchers also obtained the permission to record the sound during the focus group and promised to delete the file after finishing the research. The report of the results would not identify participants. Additionally, they used data from the focus group discussion for interpretation and inference. Score of appropriateness in implementing the model in the Myanmar transnational workers (MTWs) ranged from 1 to 5, where 1 meant "not appropriate at all", 2 meant "not appropriate", 3 meant "moderate", 4 meant "appropriate", and 5 meant "very appropriate". The mean score could be interpreted as follows: 4.21-5.00 meant "very appropriate", 3.41-3.20 meant "appropriate", 2.61-3.40 meant "moderate", 1.81-2.60 meant "not appropriate", and 1.00-1.80 meant "not appropriate at all".

Results

Table 1 shows the total mean score of the opinions of experts on the appropriateness of ENGAGE-A3 model at the level of "very appropriate", with a mean score of 4.26. When looking at each of the six components, we found that earning trust, environmental scanning, getting local help, action, and gamification were at the level of "very appropriate", with scores of 4.45, 4.27, 4.36, 4.36, and 4.45, respectively. The evaluation component was at the level of "appropriate", with a score of 4.18. When looking at each of the three components of the changes created by using this model, we found that the awareness was at the level of "very appropriate", with a mean score of 4.27, whereas the other two components were at the level of "appropriate", with a mean score of 4.0.

As shown on Figure 1, the model includes the action plan that can be employed according to this model. The plan has been utilized and tested in a factory with MTWs, aged 20-30, who understood and spoke the Myanmar language. The factory is doing frozen food business, which is the typical workplace of Myanmar in Thailand, with 400-800 documented workers. The factory owners gave prior permission and ample support to the program, which led to fairly favorable results regarding the improvement of different kinds of HIV-related knowledge and outcomes [76]. This piece of research aimed to share the model with experts in public engagement to receive their feedback on the model and improve it accordingly.

Discussion

The finding of this research showed that ENGAGE-A3 model for communicating AIDS risk among MTWs in Thailand was evaluated as very appropriate. Most of the elements

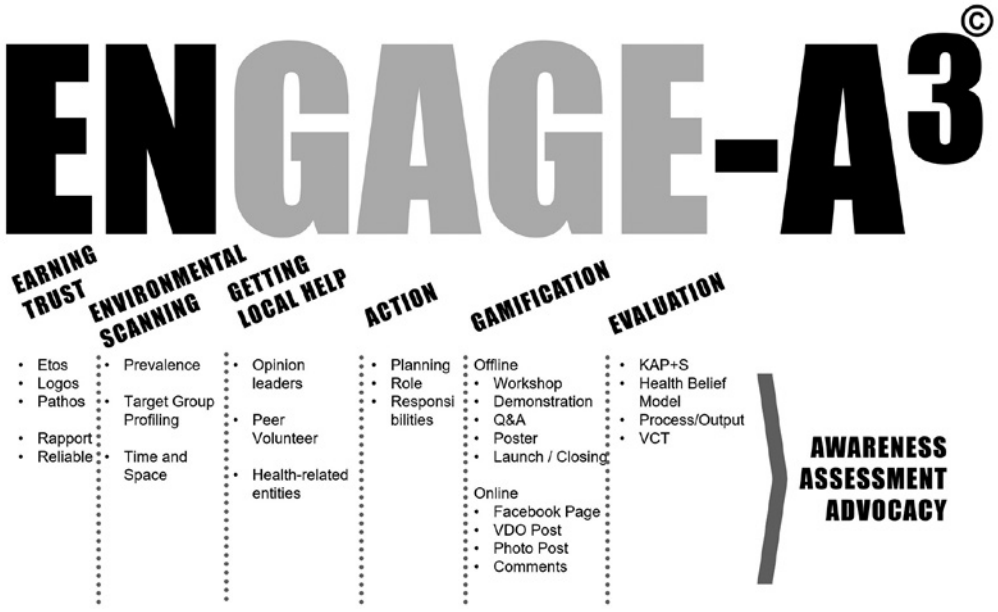

Figure 1. Summary of empirically developed concept for communicating AIDS risk among Myanmar transnational workers in Thailand

Table 1. Mean score and standard deviation of the appropriateness in implementing ENGAGE-A3 model for communicating AIDS risk among Myanmar transnational workers in Thailand (n = 10)

Item	$\bar{x}$	SD	Level of appropriateness
Earning trust	4.45	0.78	Very appropriate
Environmental scanning	4.27	0.75	Very appropriate
Getting local help	4.36	0.77	Very appropriate
Action	4.36	0.64	Very appropriate
Gamification	4.45	0.50	Very appropriate
Evaluation	4.18	0.57	Appropriate
Assessment	4.27	0.62	Very appropriate
Awareness	4.00	0.60	Appropriate
Advocacy	4.00	0.60	Appropriate
Total	4.26	0.50	Very appropriate

Table 2. Concepts, theories, and research papers, in which ENGAGE-A3 model was derived

Components/effects	Related concepts, theories, and research papers
Components	
Earning trust	Persuasion pillars that comprise ethos, logos, and pathos [27]. Building rapport [28]. Be dependable [29].
Environmental scanning	Prevalence, target group profiling, and specifying appropriate time and space [30-32]. The environmental scanning also includes investigating the culture of the target group by using PEN-3 model [30, 65, 77].
Getting local help	Asking for help from local community members [31, 32, 72, 78].
Action	Communication planning [33]. Specifying the role and responsibilities of the community's change agents [32].
Gamification	Creating fun activities for the workplace of health education [36].
Evaluation	Health belief model's four factors, namely, perceived threats, likelihood of action, modifying factors, and cue to actions [37-41]. Transtheoretical model [78]: stages of change (1) pre-contemplation, (2) contemplation, (3) preparation, (4) action, and (5) maintenance to avoid the relapse.
Effects	
1. Assessment	Risk assessment: a mental model approach [44].
2. Awareness	RISM (risk information seeking model) [45, 46].
3. Advocacy	Community members start participating in communicating AIDS risk [47-49].

received the highest ranks (earning trust, environmental scanning, getting local help, action, gamification, and assessment), with three components receiving the second highest marks (evaluation, awareness, and advocacy). Such results are well-supported by the rich theoretical background used in forming this intervention and in aligning it with recommendations of experts in this field [52, 63, 64]. The list of literature is presented in Table 2.

The earning trust (E) and gamification (G) components of the model received the highest marks, and indicated their high appropriateness in the context of HIV education. Their relevance stems from exhibiting rapport with the audience [27]. If there is no rapport on the level of nationality, culture, individual values, or at least behavior, the audience might find people who provide information distant, forceful, and unable to understand them [29, 77], which could lead to psychological reactance [50, 51]. Special attention here has to be paid to subjects of potential stigmatization, which can be specific for particular cultural contexts, as such circumstance can lower the motivation of the audience to communicate the issue [29, 77]. This would also be the main reason earning trust is the first step of this intervention plan and many other plans [71], which are crucial to implement in other stages of the intervention successfully. By contrast, gamification has been discussed as a useful contributor to many various interventions, aiming at making various

health-related or unrelated goals more acceptable and fun to those who must complete them [61]. The audience pays extra attention to contents that they find interesting and entertaining, which leads to better memorizing of newly obtained knowledge [54]. A variety of available contents contribute to this goal [33] and the use of social media sites to gather the interested audience and disseminate relevant contents [55, 56]. The stronger the rapport formed, the more will the audience members be able to connect themselves to the content, which can also lead to higher levels of motivation to change. This reflects the long-term relevance of this component and indicates the importance of its' appropriateness, as it can undermine the effectiveness of promoting intervention and its' results if performed inadequately.

The getting local help (G) and action (A) components obtained the second highest rank for the appropriateness of intervention. Getting help from the local community is an essential factor in building rapport and avoiding psychological reactance; however, it also allows the community to take ownership of the project, similar to other intervention models [71, 72]. This also leads to generating intrinsic instead of extrinsic motivation, which lead to more persistent engagement of the motivated audience [73]. In the case of active participation, the audience becomes more involved in the process and, hence, more motivated to finish it successfully. A crucial factor that should be mentioned here is the concept of self-efficacy: if the audience does not perceive required behavior as achievable, then they would be less motivated to learn it and, hence, less likely to implement it into their daily routines [40]. Planning action is also very important in any serious intervention [31, 32], with special emphasis on training personnel who would lead the program and disseminate information. As some previous studies have shown, such training can be helpful to health practitioners as well and increase their knowledge about the subject [34, 48]. This can also increase their sensitivity to the problem, which facilitates them to form the rapport with their audience, especially in a group context [33]. As the audience would probably meet only them of the entire crew who has created the program, the reputation of the project depends on the selected representatives who stand before the audience. If their behavior is inappropriate or non-professional, then the audience could find them less trustworthy and decide not to follow their advice, which can ultimately fail the intervention. This is especially essential while providing insight into the level of threat [70] as the miscommunication of the threat level or efficacy in lowering the threat could lead to unwanted results [62].

Environmental scanning (N), the third highest rated element of ENGAGE-A3, is also critical for the intervention to achieve success [30, 31]. To tailor the intervention to maximally fit the targeted audience, it is extremely necessary to collect all of the data relevant for the audience and the intervention. For instance, knowing more about the stages of change of audience could lead to more effective interventions [78], whereas Griffin *et al.* (1999) [45] discussed various factors leading to change, including individual characteristics, social pressures, capacity to learn, sufficiency of information on the perceived hazard, and beliefs of their usefulness. Socio-behavioral characteristics have been discussed for a long time as essential determinants of following health-related recommendations, which led to forming health belief model [36, 37]. As it was mentioned before, there is no cross-culturally universal intervention; therefore, these factors might also depend on the cultural context, which in turn, indicates the relevance of exploring it before conducting a public intervention program.

The evaluation (E) component almost reached the threshold of being estimated as 'very appropriate'. This component has often been criticized by experts due to inappropriate evaluation designs, which missed crucial elements, such as measure of behavioral change instead of only acquired knowledge and satisfaction or proper research designs [75]. It is important to determine various outcome variables as it has been asserted in previous research that knowledge about health-related risks does not necessarily lead to change in behavior [42]. Inadequate measures, measurement processes, or research designs make the evaluation and approval of interventions difficult, which could lead to even better results. This is the main reason it was important to assess the adequacy of evaluation due to large number of migrants who are still unaware of the risks related to HIV/AIDS. Defining the stages of change according to trans-theoretical model (explained in detail in [78]) can also be used as a measure of change, which would also indicate the needs of participants to be met for behavioral change to occur.

Of the three levels of effect components, two higher-level components, awareness and advocacy, were estimated as less appropriate than the lower-level component assessment. Such results confirm that although the intervention and their overall effects are appropriate in the context of the audience, there is still some space left for improvement to encourage change more effectively on attitudes and behaviors levels. Overall, this piece of research and ENGAGE-A3 model that have been discussed are in line with other evaluations and reviews suggesting that community mobilization can have a beneficial effect on behavioral change regarding health-related issues [79, 80].

This research also has some limitations. One of them is the limited number of experts included in the focus groups. Although their expertise makes their opinion relevant and valid in this context, including more experts, possibly with different fields of expertise, could lead to different results and more useful recommendations on how to employ ENGAGE-A3 even more appropriate. Furthermore, to evaluate the effectiveness of each component individually regarding its' contribution to the results, a more complex design involving structural modelling should be applied.

Due to the cultural adaptiveness of the model and the new context of implementation that is understood in its' name, ENGAGE-A3 has shown beneficial results after using it among a group of factory workers [76], indicating its' potential for broader use. Although further research should be conducted to verify the model's applicability in con-

texts outside the Thai-Myanmar culture, the results of this research indicate that a step towards positive changes in HIV/AIDS-related communication with migrants has been made. Hopefully, this step will be followed by many others to achieve a common goal: better health status for everyone.

Conclusions and further research

One of the main public health concerns worldwide is presented by the high rates of HIV infections. Since the first reported cases in Thailand, in 1984, various attempts have been made to control the spread of the virus. Unfortunately, over 450,000 people in Thailand are still affected by HIV. The majority of this group is composed of migrant workers, and the most significant obstacle regarding HIV risk communication with the migrant workforce is the language barrier. Previous research has indicated that migrants are interested in learning more about HIV and AIDS, including health risks and solutions available. Together, with the language barrier, cultural diversity also contributes to the difficulties faced by medical staff when diagnosing and treating migrants effectively. Taking the limiting factors into account, a public-engagement model founded in theory, was created. The ENGAGE-A3 model includes elements of gamification as well as the utilization of social media platforms. The six elements that comprise the ENGAGE-A3 model include "Earning trust", "Environmental scanning", "Getting local help", "Action", "Gamification", and "Evaluation". After conducting focus group meetings, it can be concluded that most members of the focus groups found the six elements of the ENGAGE-A3 model "very appropriate". Except for the "Evaluation" component, which was rated as "appropriate". As for the levels of change proposed by this model, most elements were rated as "appropriate". Based on these results, it can be concluded that the level of appropriateness of the ENGAGE-A3 model and its' various components is "very appropriate". As "Earning trust" and "Gamification" received the highest rankings, it is clear that these components form the foundation of good communication and the subsequent retention of information communicated. For healthcare communications to succeed, it is imperative that a strong rapport is created, as it would result in a higher degree of change. By getting local opinion leaders involved, it allows the audience to take ownership of their intervention, and would ultimately result in higher motivation and participation. It must be remembered that the newly required behavior must be achievable and appropriate for the audience in question. Furthermore, the level of professionalism and empathy of the chosen representatives would determine the reputation and eventually, the success of the intervention. As there is no universally applicable intervention strategy, research must be conducted to better understand the audience and its' motivation.

As for future research opportunities, a larger number of experts could be included in the focus group, such as experts from various fields. Also, a more complex design could be considered to evaluate each of the separate components for in-depth analysis.

Acknowledgement

We would like to thank the Faculty of Sports Sciences for the research grant. Also, we would like to thank Professors, committees, faculty and program board members, friends, and colleagues for their valuable feedbacks and supports. We would like to thank Veronica Oberholzer and the editors at Enago Academy for their assistance with English grammar and style editing, and formatting citation style.

Funding source

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Conflicts of interest

The authors declare no conflict of interest.

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