Towards effective interventions for transgender people and their clients to prevent HIV infection and transmission
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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2015

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

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Chapter 1

General Introduction
Chapter 1.
General Introduction

The HIV Epidemic among Transgender People

Second only to Sub-Saharan Africa, Asia and the Pacific take the lead in the numbers of their populations living with HIV. In this region at the end of 2013 there were an estimated 4.8 million people infected with HIV. Of this total number 13% live in Indonesia (13%; see Figure 1). In most countries in Asia and the Pacific the populations most affected by the epidemic are sex workers and their clients, gay men and other men who have sex with men, transgender people, and people who inject drugs (UNAIDS, 2013). Among these populations, male-to-female transgender people (further simply referred to as transgender people/persons/individuals) are currently getting more attention since UNAIDS (in the Gap Report; 2014) has recognized that they are a population underserved with regard to HIV-infection prevention, treatment and care programs; they are stigmatized (because of their identity), and their health problems are neglected (WHO, UNDP, UNAIDS, Asia Pacific Transgender Network, 2013). As a result, UNAIDS (2013) reported that transgender people were 49 times more likely to acquire HIV than other adults of reproductive age. The data gathered from 39 studies in 15 different countries (i.e., the USA, six Asia-Pacific countries, five Latin American and three European countries) showed that almost a fifth of transgender persons were infected with HIV (Baral et al., 2013). In Indonesia, transgender people have the second highest HIV prevalence (21.9%), the first being people who inject drugs (36.4%; Ministry of Health Republic of Indonesia et al, 2011). With regard to the prevalence of sexually
transmitted infections (STIs), Table 1 shows that transgender people have the highest rates for syphilis (25.3%); and the third highest for rectal gonorrhea and/or chlamydia (42.8%), following female sex workers (FSW) for whom selling sex is the primary income (56.5%) or secondary income (48.6%; Ministry of Health Republic of Indonesia et al, 2011).

Considering these figures it would seem clear that in order to reduce the rate of HIV incidence and HIV transmissions among transgender people they should have access to the full spectrum of prevention services including (1) prevention education, (2) provision of prevention commodities (e.g., condoms), (3) regular STI screening and treatment, and (4) HIV testing and counseling (WHO, 2013; Prabawanti, 2011; Pisani, 2004). The research presented in this thesis is focused on the development of interventions to stimulate transgender individuals and their clients to make use of such services.

**Sexual Behaviors of Transgender Sex Workers and their Clients**

The term transgender is used most often to refer to people whose gender identity or expression differs from their sex at birth (Baral et al., 2013). The transgender identity has become an umbrella term to cover a number of similar categories (e.g., transsexual, transvestite or cross-dresser; [http://en.wikipedia.org/wiki/Transgender](http://en.wikipedia.org/wiki/Transgender)). In Indonesia, transgender persons are referred to as *waria*, which comes from the words *wanita* (female) and *pria* (male). According to Oetomo (1991), waria are grouped as the third gender. Many describe themselves as women trapped in men’s bodies (Oetomo, 1996).

Waria are considered to be at risk of contracting HIV because they often practice unprotected anal sex with men in commercial and/or non-commercial settings. In
addition, waria may have unprotected anal sex with multiple partners, whether by working as a commercial sex worker or by having non-commercial sex partners. Consequently, these high levels of HIV infection and sexually transmitted infections (STI) among transgender people, combined with inconsistent condom use, exposes waria’s sexual partners to an increased risk of HIV infection and other STIs. Moreover, the fact that waria’s sexual partners may in turn have varying and concurrent sexual partnerships with biological women or men (Operario, Burton, Underhill, & Sevelius, 2008; Nemoto, Operario, Keatley, Han, & Soma, 2004) further increases the risk of transmitting HIV and other STIs to these other sex partners (both female and/or male). This suggests that male partners of waria may play a central role as part of a “bridging population” in the spread of HIV infection and other STIs (Ota, Wariki, Mori, Hori, & Shibuya, 2011; Alary & Lowndes, 2004). Although waria might be expected to use condoms consistently when performing sexual risk behaviors this is not the case. Besides personal factors that contribute to an inconsistent use of condoms, many male sexual partners of transgender individuals are unwilling to use condoms during sexual relations, and the waria are not always successful in negotiating condom use (Bharat, Mahapatra, Roy, & Saggurti, 2013; Kamal, Hassan, & Salikon, 2013). Therefore, prevention interventions targeting both actors - waria and their sexual partners - are considered strategic to reduce transmission of HIV and other STIs. Development of effective prevention interventions to stimulate condom use must be based on adequate knowledge of the sexual behaviors of clients of waria sex workers.

Despite the reports of high prevalence of HIV and other STIs among transgender people, scientific evaluations of relevant interventions are scarce. Among the few available studies is a transgender-specific intervention developed and evaluated in Minnesota in the United States. The three-month follow up results showed significant
improvements in attitudes toward condom use, safer sex self-efficacy with regard to condom use, adherence to monogamy, and sexual risk behavior (Bockting, Robinson, Forberg, & Scheltema, 2005). A relevant comprehensive review is available, dealing with the effectiveness of prevention interventions to reduce unprotected anal sex among men who have sex with men (MSM; Johnson et al., 2008). This review covers 44 studies evaluating 58 interventions with 18,585 participants. The results indicate that behavioral interventions for MSM can work. These results can inspire the further development of effective interventions for transgender persons and their clients.

Health-seeking Behaviors of Transgender Individuals

As discussed earlier, HIV and STI prevalence rates among waria also indicate a serious need for access to HIV-related health services to provide effective treatment, break the chain of infection, and shorten the duration of infectivity. Waria should be encouraged to carry out health-seeking behaviors, including making use of the four essential HIV-related health services. The related health-seeking behaviors are: 1) visiting STI services regularly; 2) adhering to STI treatment; 3) taking an HIV test; 4) and picking up HIV test results.

Patients’ non-adherence to screening and medical treatments remains a problem for both the medical professions and social scientists (Dulmen, Sluijs, Van Dijk, De Ridder, Heerdink, & Bensing, 2007). Results of a systematic review showed that approximately 20% to 50% of patients did not adhere to medical therapy (Kripalani, Yao, & Haynes, 2007). This low patient adherence has become a major barrier to the effectiveness of medications (Nieuwlaat et al., 2014). However, it is possible to design programs that adequately target screening and treatment behaviors. For example, a study among female sex workers (FSWs) in Indonesia provided STI screening with
sufficient coverage as an essential part of a comprehensive STI-control strategy. As a result, the STI-control program succeeded in reducing infection prevalence and increasing condom use among sex workers (Bollen et al., 2010).

In their 2011-2015 Strategy, UNAIDS (2010) aims at zero AIDS-related deaths by providing universal access to antiretroviral therapy (ART) for people living with HIV who are eligible for treatment. ART has proven to increase life expectancy in HIV-infected individuals, and has also been shown to be a cost-effective treatment (Walensky et al., 2009). However, early initiation of ART is needed to obtain optimum benefits (Cohen et al., 2011). In order to achieve this goal, individuals first need to be aware of their HIV status by undergoing an HIV test and getting the test results. As suggested by the Centers for Disease Control and Prevention in the USA, prevention interventions need to target high-risk populations and apply routine testing in these groups (Bayer & Fairchild, 2006). Some previous studies showed that HIV counseling and testing can also function as secondary prevention for HIV-positive individuals (Weinhardt, Carey, Johnson, & Bickham, 1999). The prevalence of unprotected sex behaviors decreased significantly after people received HIV testing and counseling and became aware of their HIV status (Denison, O’Reilly, Schmid, Kennedy, & Sweat, 2008; Marks, Crepaz, Senterfitt, & Janssen, 2005).

To influence waria to make use of existing services for screening and treatment of STIs and HIV infection, we must understand the psychology underlying the following HIV-related health-seeking behaviors: 1) visiting the STI services regularly; 2) adherence to the STI treatment; 3) taking an HIV test; 4) and picking up the HIV test result.
Positioning this study in the context of Intervention Mapping approach

There is growing evidence that well designed, targeted, and theory-based behavior change interventions can be effective in reducing the spread of HIV. Understanding the psychological factors underlying the behaviors of condom use and health-seeking, and their role in behavioral prediction, can augment the development of effective behavior change interventions (Fishbein, 2000). One instrument available for the development of theory- and evidence-based health promotion programs is Intervention Mapping. This provides guidelines and tools for the selection of theoretical foundations for health promotion programs, for the application of theory, and for the translation of theory into actual program materials and activities (Kok, Schaalma, Ruiter, Van Empelen, & Brug, 2004). Intervention mapping describes the process of health promotion program development in six steps (Figure 2): (1) Conduct a needs assessment; (2) Formulate change objectives; (3) Select theory-based intervention methods and practical strategies to change (determinants of) health-related behavior; (4) Organize methods and application into an intervention program; (5) Plan adoption, implementation and sustainability of the program; (6) Generate an evaluation plan (Bartholomew, Parcel, Kok, Gottlieb, & Fernandez, 2011). To shape and finish each step in the Intervention Mapping process, specific types of information must be gathered. Often the needed information is available in the literature, preferably from well-designed studies. However, with regard to waria little information is available. It is therefore the aim of this thesis to provide necessary information for specific steps in the Intervention Mapping process. This information includes insight into the socio-demographic characteristics and sexual behaviors of waria and their clients, greater understanding of the psychological causes of condom use-related and HIV-related health-seeking behaviors, and knowledge on the sexual identity of clients.
Socio-demographic Characteristics and Sexual Behaviors

The Ministry of Health Republic of Indonesia has for several years conducted behavioral surveillance surveys among waria and has assessed their socio-demographic characteristics (e.g., age, educational level, ethnic background, and duration of living in Jakarta; Badan Pusat Statistik and Departemen Kesehatan, 2005; Departemen Kesehatan Republik Indonesia, 2009; Kementerian Kesehatan Republik Indonesia, Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan, 2011). Thus, with regard to some basic characteristics the population of waria has been mapped. However, we have little basic information regarding the demographic characteristics of the clients of waria sex workers.

With respect to sexual behaviors, behavioral surveillance surveys among waria sex workers in Jakarta showed that the median number of clients for anal sex in the past week was two in 2007 and three in 2011 (Departemen Kesehatan Republik Indonesia, 2009; Kementerian Kesehatan Republik Indonesia, Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan, 2011). These surveys focused on waria sex workers but did not distinguish between waria providing paid sex and those providing unpaid sex. Therefore, the present research further explores socio-demographic factors in relation to selling or not selling sex. In addition, as sufficient data are lacking with regard to the clients of waria sex workers, another purpose of this study is to profile the demographic characteristics and sexual behaviors of these clients.

Such knowledge is needed for further intervention development: according to Intervention Mapping, the first prerequisite is to understand the population with the health problem (Bartholomew, Parcel, Kok, Gottlieb, & Fernandez, 2011). In Step 1 the information on sociodemographics is used to profile the target groups; knowing these socio-demographic characteristics (e.g., age, gender, educational level, socio-economic
status, ethnicity, duration of living in Jakarta, and more) we will be able to define the boundaries and shared characteristics of the group (waria, clients) at risk for certain health problems. In Step 1 we also need to explore possible causes of health problems or risk factors that affect the health of this population. In the context of the health problem of HIV infections, HIV transmission and AIDS, unprotected sexual intercourse (during anal or vaginal sex) is a central behavioral cause. In Step 3 of Intervention Mapping this information can be used to design actual interventions: it may help with finding channels to expose target groups to interventions, and is essential for shaping all communication towards the target group. In Step 2 information on condom use and HIV-related health-seeking behaviors is also important in order to formulate the final performance objectives (What are the central behaviors that should be changed to lower the problem?).

In conclusion, the present research aims to gather further knowledge on socio-demographic characteristics, sexual behaviors, condom use and/or HIV-related health-seeking behaviors of waria and the clients of waria sex workers to fill the gaps in the knowledge that is needed to develop interventions to prevent HIV transmission. Table 2 contains a summary of the data that have been collected and reported in the present thesis.

**Psychological Causes of HIV-related and Health-seeking Behaviors**

An important focus of this study is to examine the psychological causes of condom use-related behaviors of waria and clients of waria sex workers, and the psychological causes of the four HIV-related health-seeking behaviors of waria by using the theory of planned behavior (TPB). The TPB has been widely used for the prediction of human behavior (Ajzen, 2011). The TPB is a parsimonious model (McEachan, Conner, Taylor, &
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Lawton, 2011), and it has been used as a basis, fully or at least in part, for several HIV prevention interventions (e.g., Kamb, Dillon, Fishbein, Willis, 1996; Kamb et al., 1998; Bryan, Aiken, & West, 1996; Basen-Engquist, 1994; Jemmott & Jemmott, 1992). A review of applications of the theory of planned behavior to health-related behaviors in general concludes: “The efficiency of the model seems to be quite good for explaining intention, perceived behavioral control being as important as attitude across health-related behavior categories. The efficiency of the theory, however, varies between health-related behaviors categories” (p. 87; Godin & Kok, 1996).

With regard to condom use, empirical studies, narrative reviews, and meta-analyses that apply the theory of planned behavior are available (Gredig, Nideroest, & Parpan-Blaser, 2006; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Rye, Fisher, & Fisher, 2001; Bennet & Bozionelos, 2000; Sheeran, Abraham, & Orbell, 1999; Sheeran & Taylor, 1999; Reinecke, Schmidt, & Ajzen, 1996; Godin et al., 1996). With regard to preparatory behaviors that usually precede actual condom use, such as buying condoms and negotiating condom use, some studies are also available (Van Empelen & Kok, 2008; Van Empelen & Kok, 2006; Bryan, Fisher, & Fisher, 2002). Furthermore, Albarracin, Johnson, Fishbein and Muellerleile (2001) reported a meta-analysis of 96 data sets from 42 reports on the study of the theory of reasoned action and the theory of planned behavior, or both, on condom use in vaginal sex and anal sex, in populations defined as at risk (e.g., heterosexuals, men who have sex with men/MSM, people who inject drugs, adolescents, students and teachers). However, of the studies reported in this meta-analysis none were specifically mentioned as targeted at transgender persons and the clients of transgender sex workers.

Unlike condom use behaviors, there is little known about people’s health-seeking behaviors in relation to STIs. One of the few studies we found was an exploratory study
applying the theory of planned behavior (TPB) to stigma, STIs, and attendance at a Genito-Urinary Medicine (GUM) clinic in a close-knit community in the north of England (Mulholland & Wersch, 2007). There are also some studies on other screening behaviors that use the TPB as a theoretical framework, for example on attendance at cervical cancer screenings (Sheeran & Orbell, 2000), attendance and reattendance at breast cancer screening (Rutter, 2000), predicting health-check attendance (Norman & Conner, 1996), and attendance at breast screening in inner London (Sutton, Bickler, Sancho-Aldridge, & Saidi, 1994). One meta-analysis on screening programs using the Theory of Reasoned Action (TRA) identified 33 studies (e.g., cervical smear, genetic test, colorectal screen, mammogram, diabetes, tuberculosis screening, prenatal screening and health check (Cooke & French, 2008).
With regard to the behavior of HIV testing some studies are available on attending HIV counseling and testing among health professionals in the Jimma Zone, Ethiopia (Abamecha, Godesso, & Girma, 2013), among teachers from the Harari Region, Ethiopia (Omer & Haidar, 2010), among Tanzanian teachers (Kakoko, Astrøm, Lugoe, & Lie, 2006), and among MSM in Hongkong (Gu, Lau, & Tsui, 2011).

Thus there are studies on HIV-related health-seeking behaviors that apply TPB, but very few have been made on STI screening and HIV testing, and almost none on STI screening and HIV testing among transgender people. Again, to be able to develop interventions to lower HIV prevalence, we need to fill these gaps in our knowledge.

In Intervention Mapping, knowledge of the psychological determinants of specified behaviors is needed primarily in Step 2: once we have defined the behaviors that need to be changed we need to map the psychological causes of these behaviors, as interventions need to change these psychological causes in order to change behavior. Indeed, in Step 3 of Intervention Mapping, specified methods must be chosen that have the potential to change each of the psychological causes of behavior (Bartholomew, Parcel, Kok, Gottlieb, & Fernandez, 2011). Theoretical methods are general techniques or processes designed to bring about changes in the determinants of behaviors and environmental conditions. Many of these are specific to the psychological causes they can change. For example, some methods may changes attitudes, other methods may change subjective norms, and very different methods may change perceptions of control. Thus, to design the actual working elements in interventions, the methods, it is essential to know the psychological causes that need to be changed.
The Psychology of Sexual Identity

In the context of HIV-infection prevention interventions, clients of sex workers may co-determine the decision to practice safe-sex behaviors. However, common knowledge of clients’ existence, interests and sex behaviors - men with specific interest in transgender sex - is hardly available. Men who have sex with transgender persons are viewed as having an unconventional sexual orientation. One qualitative study conducted in San Francisco observed diversity in the ways clients identified and explained their sexual orientation, and found no consistent pattern between how they described their sexual orientation identity and their sexual behaviors and attraction to transgender persons (Operario, Burton, Underhill, & Sevelius, 2008). Therefore, to understand better the characteristics of clients of waria sex workers, we will examine also the sexual identity of the clients of waria sex workers, as suggested by Levay (1993), Shively & De Cecco (1977), Sell (1997) and Larson (1981), that is: (1) biological gender, (2) social gender, (3) sexual orientation, and (4) gender roles.

Relevant to Intervention Mapping, their sexual identity and their related sexual needs may, first, be related to their involvement in HIV-related behaviors as defined in Step 2. On the other hand, in designing interventions in Step 3 it is important to understand how people from the target group perceive themselves. Only then is it possible to communicate to them in an effective way. Thus, sexual identity information will further contribute to our knowledge of the target group and augment the application of Intervention Mapping.

Aims and Overview of the Thesis

In the framework of developing interventions we conducted research among waria and their clients. In this thesis we present and analyze data from structured interviews
with 209 waria and 250 clients in Jakarta, Indonesia. Chapters 2, 3 and 4 present data on waria. Chapter 2 discusses the sociodemographic characteristics and sexual behaviors of waria, such as selling sex, but also their first sexual experience. The research questions are “Who are waria?” and “What are the characteristics of the waria who are selling sex?” In Chapter 3 the TPB is applied to map the determinants of five HIV-related behaviors: (1) the three preparatory of condom use behaviors (getting, carrying and offering condoms); (2) condom use during receptive anal sex; and (3) condom use during insertive anal sex. To get a fuller picture of the determinants, mediation analyses are also conducted among the determinants. In Chapter 4 the TPB is applied to map the determinants of the four HIV-related health-seeking behaviors: visiting the STI services regularly, adherence to STI treatment, taking an HIV test, and picking up the HIV test result. Again, mediation is studied. Chapters 5 and 6 present the data on clients of waria sex workers. In Chapter 5 the TPB is applied to map the determinants of two condom use behaviors of clients: condom use during insertive anal sex with waria sex workers and condom use during vaginal sex with female partners. In Chapter 6 the sexual identity of clients is addressed: (1) gender identity; (2) social gender; (3) sexual orientation (i.e., self-identified sexual orientation, sexual attraction and sexual fantasies). Chapter 7 contains the general discussion of the research presented in this thesis. This chapter will reflect critically on the methods and results and formulate some final conclusions and recommendations for further research on waria and their clients in the framework of intervention development.
References


Towards effective interventions for Transgender people and their Clients to prevent HIV infection and transmission: A study of the Psychological determinants, Sexual behaviors, and Socio-demographic characteristics related to condom use and health care use


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### Tables

**Table 1**

STIs Prevalence of Waria, Direct FSWs and Indirect FSWs in Indonesia 2011

<table>
<thead>
<tr>
<th>STIs</th>
<th>Prevalence (%)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Waria</td>
<td>Direct FSW (Vaginal)</td>
<td>Indirect FSW (Vaginal)</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>28.3</td>
<td>40.7</td>
<td>40.6</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>28.8</td>
<td>37.8</td>
<td>18.7</td>
</tr>
<tr>
<td>Chlamydia and or Gonorrhea</td>
<td>42.8</td>
<td>56.5</td>
<td>48.6</td>
</tr>
<tr>
<td>Syphilis</td>
<td>25.3*</td>
<td>10.2*</td>
<td>3.1*</td>
</tr>
</tbody>
</table>

Table 2
Summary of Studies on Condom Use, HIV-related Health-seeking Behaviors, and Sexual Identity in Waria and the Client of Transgender Sex Workers

<table>
<thead>
<tr>
<th>Data Collected</th>
<th>Waria</th>
<th>Clients of varia sex workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Socio-demographic characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sexual behaviors</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Preparatory behaviors of using condom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Getting condoms</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4. Carrying condoms</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5. Offering condoms</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Condom use behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Using condom during receptive anal sex with male sexual partners (including commercial sex partners)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7. Using condom during insertive anal sex with male sexual partners (including commercial sex partners)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8. Using condom during insertive anal sex with waria sex workers</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>9. Using condom during vaginal sex with wife/girlfriend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Using condom during vaginal sex with FSWs/other women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-related health-seeking behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Visiting STI services regularly</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>12. Adherence to complete STIs treatment</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>13. Taking for HIV test</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>14. Picking up the result of HIV test</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sexual Identity of Clients of Transgender Sex Workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Sexual gender</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>16. Sexual orientation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>17. Gender roles</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1. Estimates proportions of people living with HIV in different parts of the region in Asia and the Pacific 2013

Source: UNAIDS 2013 estimates
### Intervention Mapping Steps and Tasks

**Step 1**  
**Needs Assessment**  
- Establish a participatory planning group  
- Conduct the needs assessment  
- Assess community capacity  
- Specify program goals for health and quality of life

**Step 2**  
**Matrices**  
- State outcomes for behavior and environmental change  
- State performance objectives  
- Select important and changeable determinants  
- Create a matrix of change objectives

**Step 3**  
**Theory-based intervention methods and practical applications**  
- Generate program ideas with the planning group  
- Identify theoretical methods  
- Choose program methods  
- Select or design practical applications  
- Ensure that applications address change objectives

**Step 4**  
**Intervention Program**  
- Consult intended participants and implementers  
- Create program themes, scope, sequence, and material list  
- Prepare design documents  
- Review available program materials  
- Draft program materials and protocols  
- Pretest program materials and protocols  
- Produce materials and protocols

**Step 5**  
**Adoption and Implementation**  
- Identify adopters and implementers  
- Reevaluate the planning group  
- State program use outcomes and performance objectives  
- Specify determinants for adoption and implementation  
- Create a matrix of change objectives  
- Select methods and practical applications  
- Design interventions for adoption and implementation

**Step 6**  
**Evaluation Plan**  
- Review the program logic model  
- Write effect evaluation questions  
- Write evaluation questions for changes in the determinants  
- Write process evaluation questions  
- Develop indicators and measures  
- Specify evaluation design

*Figure 2. Intervention Mapping Steps and Tasks*

*Source: Bartholomew, Parcel, Kok, Gottlieb, & Fernandez, 2011*