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## **HIV Status and Gender: A Brief Report from Heterosexual Couples in Thailand**

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*Although the impact of HIV falls on both partners of a married couple, the burden of stress may not be necessarily shared evenly. The researchers in this study examined the relations among HIV status, gender, and depressive symptoms among 152 married or cohabitating couples living with HIV in the northern and north-eastern regions of Thailand. Depressive symptoms were assessed using a 15-item depressive symptom screening test that was developed and used previously in Thailand. Among the 152 couples, 59% were couples in which both members were people living with HIV (seroconcordant; both people living with HIV couples), 28% had only female members with HIV (serodiscordant; females living with HIV couples), and 13% had only male members with HIV (serodiscordant; males living with HIV couples). The prevalence of depressive symptoms between seroconcordant and serodiscordant groups was similar. However, females living with HIV reported significantly higher levels of depressive symptoms, regardless of their partners' HIV status. Future prevention programs focusing on serodiscordant couples should be planned to target HIV risk, as well as emphasis on mental health, with a particular focus on women's increased susceptibility to negative mental health outcomes.*

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## INTRODUCTION

As HIV has become a manageable illness with the recent advancement of antiretroviral treatment (ART), the focus of survival has gradually shifted to improving everyday lives for people living with HIV (PLH), and their family members. More and more married and cohabitating couples living with HIV, either those in which both partners (seroconcordant) or only one partner is affected (serodiscordant), face challenges associated with HIV daily, which could affect their mental health and quality of life (Van der Straten et al., 1998; Persson, Barton, & Richards, 2006; de Walque, 2007; Rispel et al., 2012). Previous studies have documented that serodiscordant status adds pressure to a relationship in terms of fears of transmission, guilt, and anxiety which could be emotionally exhausting, taking on caretaking abilities, barriers to pregnancy, status disclosure, and HIV stigma that affects the relationship (Van der Straten, 1998; Beckerman, 2002; Kalichman et al., 2002; Klein et al., 2003; Allen et al., 2003; Bunnell et al., 2005; Persson et al., 2006; Beyeza-Kashesya et al., 2009; Talley & Bettencourt, 2010; Eyawo et al., 2010; Pereira et al., 2011). These unique hurdles create added stress that could affect mental health (Siegal & Lekas, 2002; Pomeroy, Green, & Van Laningham, 2002; Gordon-Garofolo & Rubin, 2004; Jarman, Walsh, & de Lacey, 2005; Bradley, Remien, & Dolezal, 2008; Plattner & Meiring, 2006).

Although the impact of HIV falls on both partners of a married or cohabitating couple, the burden of stress may not be necessarily shared evenly. Past studies have been done on the assumption that men are thought to be the index case in most relationships, and most social marketing and awareness campaigns have been focused on men (Eyawo et al., 2010). Although some studies on this topic have focused on the HIV status of the couples (Allen et al., 2003; Persson, Barton, & Richards, 2006; Persson & Richards, 2008; Persson et al., 2009; Bouhnik et al., 2007; Eaton et al., 2009; Kelly et al., 2011) or compiled them as a whole (Hernandez et al., 2009), very few studies have included gender in the equation. A study by Kennedy and colleagues reported that women were the most stressed when in a discordant relationship, regardless of their HIV status (Kennedy, 1995); and according to Stevens, women were most fearful when they were HIV-infected and navigating a serodiscordant relationship (Stevens & Galvao, 2007). This study examined the relationships between HIV status, gender, and depressive symptoms among 152 married or cohabitating couples living with HIV in Thailand. The authors hypothesized that women would report higher depressive symptoms compared to men. A better understanding of couples' mental health status in relation to gender and HIV status may help service providers develop more targeted, effective coping strategies for the population.

## METHODS

### Study Setting and Sample

The participants in this study were derived from a randomized controlled family intervention trial conducted in the northern and northeastern regions of Thailand (Li et al., 2010). The data were collected in 2007 from four district hospitals in the two regions (two district hospitals per region). Eligibility criteria included: (1) having at least one PLH in the household; (2) having at least one family member who was aware of the HIV status of the PLH; (3) having at least one school-aged child living in the household; and (4) the ability to provide written informed consent from the PLH and family members. Project recruiters screened 484 HIV-affected families at the participating hospitals. During monthly support group meetings, flyers were handed out to potential participants. Those who were interested in participating in the study were directed to contact a recruiter who screened and determined the eligibility of the participant. Of the 484 families screened, 431 families (89%) met the eligibility criteria. Of the 431 eligible families, 410 consented to participate (refusal rate = 4.9%). The PLH and one adult family member, preferably the other member of the couple, from each family were recruited. Because many family members were not the PLH's husband or wife, or cohabiting partners, 152 couples were identified and included in the study.

Following written and signed informed consent, a trained interviewer administered the assessment to the participants using Computer Assisted Personal Interview (CAPI). All participants received 300 Baht (equivalent to approximately ten U.S. dollars at the time of the study) for their assessment participation. Approval of this study was obtained from the Institutional Review Board (IRB) at the University of California, Los Angeles, and the Thailand Ministry of Public Health Ethical Review Committee for Research in Human Subjects.

### Instruments

Depressive symptoms were assessed using a 15-item depressive symptom screening test that was developed and used previously in Thailand (Thai Department of Mental Health, 2004). These questions asked about problems that had bothered participants in the past week (e.g., feeling depressed most of the time, feelings of hopelessness or worthlessness, loss of self-confidence), with response categories from 0 (*not at all*) to 3 (*usually* [5–7 days a week]). A summative composite scale was developed, with a range of 0 to 45, and an excellent internal consistency (Cronbach's  $\alpha = 0.91$ ). The authors also collected demographic information, including age and gender of the participant, and household income.

## Data Analysis

Demographic characteristics were summarized using descriptive statistics and frequencies. Groups were compared using ANOVA or chi-square test for continuous and categorical variables, respectively. A linear mixed-effects regression model with family-level random effects was used to compare the depressive symptom scores in the seroconcordant group (both PLH couples) with the two serodiscordant groups (female PLH couples and male PLH couples). Pre-selected covariates of interest included age, gender, annual household income, group (male PLH couples, female PLH couples, and both PLH), and group-by-gender interaction. These covariates were included in the analyses based on the authors' *a priori* knowledge that they might be potential confounders in models using depressive symptoms as an outcome. The family-level random intercept was included to account for dependence within families. The comparisons of interest were made through model contrasts, and Akaike's Information Criterion (AIC) fit statistic was used to compare models. All statistical analyses were conducted with the SAS System for Windows (version 9.2), and all the graphs were generated using the publicly available statistical software R (R Development Core Team, 2008).

## RESULTS

Of the 152 couples in this study, about 80% were HIV positive; 59% were couples in which both members were PLH (seroconcordant; both PLH couple); 28% of the couples had female members with HIV (serodiscordant; female PLH couple); and 13% of the couples had male members with HIV (serodiscordant; male PLH couple) (Table 1). Sixty-five percent of male participants versus 83.5% of female participants were aged 40 years or younger. About half of the study participants reported their annual income to be 35,000 Baht or less (about 1,100 U.S. dollars). The average age of the participants in the seroconcordant group was 36.7 years ( $SD = 5.0$ ), which was younger than that of the participants in the other two groups (mean = 37.5 versus 38.9 years for male PLH couple versus female PLH couple groups, respectively;  $p = 0.12$ ). The mean difference in age within a family for the female PLH couple group was higher. The average annual household income for the seroconcordant group was about 55,000 Baht (about 1,770 U.S. dollars), and that for the male PLH couple group was about 600 Baht (about 19 U.S. dollars) higher than that for the female PLH couple group. No significant differences were observed for age and annual household income among the three groups.

Results from the mixed-effects regression model indicated that age and household income were not significantly associated with depressive symptoms ( $p = 0.83$  and  $0.10$ , respectively) (Table 2). The distribution

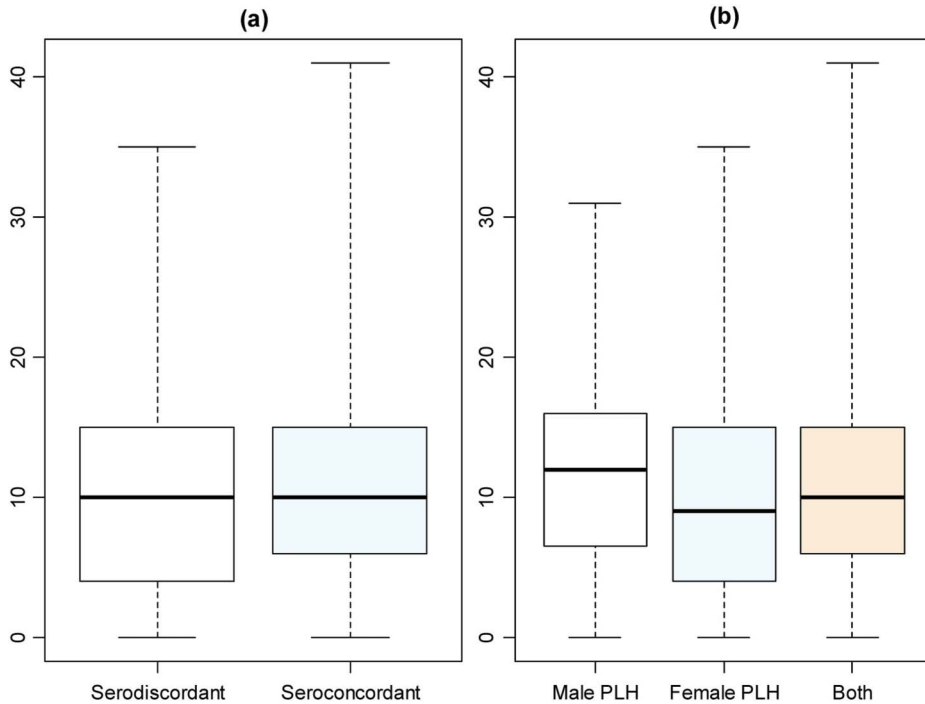
**TABLE 1** Baseline Characteristics of Study Sample

|                                       | N(%)      |
|---------------------------------------|-----------|
| Number of couples                     | 152       |
| Couple type                           |           |
| Male PLH couple                       | 20 (13.2) |
| Female PLH couple                     | 42 (27.6) |
| Both PLH                              | 90 (59.2) |
| Age (years)                           |           |
| Male                                  |           |
| ≤30                                   | 14 (9.2)  |
| 31–40                                 | 85 (56.0) |
| 41–50                                 | 43 (28.3) |
| >50                                   | 10 (6.6)  |
| Female                                |           |
| ≤30                                   | 27 (17.9) |
| 31–40                                 | 99 (65.6) |
| 41–50                                 | 23 (15.2) |
| >50                                   | 2 (1.3)   |
| Annual income                         |           |
| ≤15,000 Baht (~\$480)                 | 34 (22.4) |
| 15,001–35,000 Baht (~\$480–\$1,100)   | 40 (26.3) |
| 35,001–55,000 Baht (~\$1,000–\$1,770) | 51 (33.6) |
| >55,000 Baht (~\$1,770)               | 27 (17.8) |

**TABLE 2** Estimates and Standard Errors (SE) from Mixed-Effects Regression Model for Depressive Symptoms

| Outcome = Depressive Symptoms             | Estimate (SE)  | <i>p</i> |
|---|----------------|----------|
| Age                                       | 0.015 (0.070)  | 0.831    |
| Household income (per 1,000)              | −0.015 (0.009) | 0.099    |
| Main effects                              |                |          |
| Gender (female–male)                      | 2.064 (1.063)  | 0.054    |
| Group                                     |                | 0.202    |
| Male PLH couples                          | 2.319 (1.544)  |          |
| Female PLH couples                        | −0.702 (1.163) |          |
| Both PLH couples                          | Ref            |          |
| Interaction: Gender-by-Group              |                | 0.071    |
| Comparisons of interest                   |                |          |
| Serodiscordant vs. seroconcordant couples | 0.809 (1.071)  | 0.452    |
| Male PLH couples: Female vs. male         | −1.638 (2.425) | 0.501    |
| Female PLH couples: Female vs. male       | 5.174 (1.683)  | 0.003    |
| Both PLH couples: Female vs. male         | 2.657 (1.117)  | 0.019    |

of depressive symptom scores between serodiscordant and seroconcordant groups were similar (Figure 1a); estimated difference = 0.809, SE = 1.071,  $p = 0.45$ ), and the distributions of depressive symptoms did not differ significantly between the two serodiscordant groups (Figure 1b); estimated difference = 3.021, SE = 1.698,  $p = 0.08$ ). In the final model where the group-by-gender interaction was added, the authors found that women



**FIGURE 1** Boxplots of depressive symptoms (a) serodiscordant vs. seroconcordant couples and (b) male PLH vs. female PLH vs. both. A boxplot (Tukey, 1977) is a convenient way of graphically depicting groups of numerical data through their five-number summaries (minimum, lower quartile, median, upper quartile, and maximum) (color figure available online).

reported significantly more depressive symptoms than men in the seroconcordant group (both PLH couples; estimated difference = 2.657, SE = 1.117,  $p = 0.019$ ). Similarly, in the serodiscordant group (female PLH couples), women reported significantly more depressive symptoms than their male partners (estimated difference = 5.174, SE = 1.683,  $p = 0.003$ ). In the serodiscordant group (male PLH couples), men reported slightly more depressive symptoms than their female partners (estimated difference =  $-1.638$ , SE = 2.425,  $p = 0.501$ ), but the difference was not statistically significant (Table 2).

## DISCUSSION

To the authors' knowledge, this is one of the first studies to examine depressive symptoms in PLH by gender, as well as serostatus of the couples. The current findings have important implications for future prevention strategies focusing on the mental health of couples living with HIV. Female PLH in Thailand reported significantly more depressive symptoms, regardless of

their partners' HIV status. This finding highlights that the burden of the HIV epidemic may differentially affect the sexes, perhaps reflecting women's and men's different roles in household and family activities. HIV poses a significant burden and increased demand of caregiving for many families globally. In many parts of the world, the unequal division of labor within the household may put an additional burden of care on women, who predominantly fulfill the role as primary caregivers (MacNeil, 1996; Olenja, 1999; Bunting, 2001; Joseph & Bhatti, 2005; Kipp et al., 2007). For example, when a husband becomes ill, the wife provides care and takes on additional duties to support the family (Bharat & Aggleton, 1999; Joseph & Bhatti, 2005; Revenson et al., 2005). When women fall sick, other women in the family care for them and their children. The evidence from caregiving studies suggests that female caregivers are more likely to experience burden than are male caregivers (Miller & Cafasso, 1992; Chappell & Reid, 2002; Joseph & Bhatti, 2005; Revenson et al., 2005; Pinquart & Sorensen, 2006; Vithayachockitikhun, 2006; Kipp et al., 2007; Golobof et al., 2011). Women often take on the responsibility for household work and for caring for children, elderly, and sick family members (Moser, 1989; du Guerny & Sjoberg, 1993; Revenson et al., 2005; Kipp et al., 2007; Dawuni, 2008). The situation could become more stressful when the caregiving woman herself is infected, as she struggles to balance her own health concerns with the demands of her family and relatives. Previous studies reported that, in spite of their HIV infection, family members expected women to remain in the role of primary family and child caregiver (Hackl et al., 1997; Bunting, 2001; Joseph & Bhatti, 2005; Kipp et al., 2007). The veritable role of gender prescribing a woman's place in society magnifies her vulnerability to the extent that she may be more negatively affected by the HIV epidemic.

The current study underscores the important notion that while HIV infection plays a role in adding stress in a family or couple, it is not spread evenly when gender is taken into account. In the study, the highest level of depressive symptoms was reported by the serodiscordant couples in which the male partner was infected by HIV. This finding is not surprising, because men in many cultures, including Thailand, are likely to engage in income-generating work that is often valued and recognized. They normally earn more money, are better educated, and better represented in their communities than women (Whyte, 2001; Vithayachockitikhun, 2006). Their illness can directly affect family productivity and income; thus, the quality of life of all members suffers (Russell, 2004). Men in this study reported the lowest level of depressive symptoms when their wife or partner was infected but they were not (serodiscordant female PLH). One interpretation could be that when women are infected, they may demand less care from their husbands or partners. They might sacrifice their caring needs for other family members, whereas when men are infected, the burden falls more heavily on their female partners.



Women face many unique additional HIV-related challenges, compared to their male counterparts. These unique challenges are often intensified by ways in dealing with stress and illness. Generally speaking, gender is a factor in the exposure, experience, and coping of stress (Davis, Burleson, & Kruszewski, 2009; Zwicker & DeLongis, 2010). For example, women are more vulnerable than men to be depressed (Boyd & Weissman, 1981; Baum & Grunberg, 1991; Wisniewski et al., 2005; Remien et al., 2006; Valverde et al., 2007; Gordillo et al., 2009; Pereira & Canavarro, 2011). Women are at a disadvantage in terms of being more prone to life stressors impacting their quality of life. Studies are replete with findings of women possessing lower quality of life scores than men (e.g., poorer psychosocial adaptation, low levels of psychological adjustment/well-being, and higher visibility of psychopathological symptoms), suggesting gender inequity in HIV infection (Cederfjall et al., 2001; Wisniewski et al., 2005; Chandra et al., 2009; Solomon et al., 2008; Pereira & Canavarro, 2011). On the other hand, having depressive symptoms may impair women's abilities to cope with their own infection and provide care for the illness of a partner.

The authors identified several limitations in this study. The first limitation pertained to the eligibility criteria. To be eligible for the study, PLH had to have at least one family member who knew about their HIV status. These selection criteria limited the generalizability of the study findings to those whose HIV status was not disclosed. Also, although the authors included potential confounders (e.g., age, gender, and income), a range of other possible factors that might have been related to depressive symptoms were not included in the study, potentially resulting in uncontrolled confounding. Second, the study focused on depressive symptoms rather than depression, so the findings may not be relevant to a diagnosis of major depression. Third, because the authors had fewer couples with male PLH compared to female PLH, they may have had inadequate statistical power to detect meaningful differences between these two groups as statistically significant. Finally, given that this was a cross-sectional study, temporal relations could not be assessed (e.g., depressive symptoms may have preceded HIV infection) so that the authors could not make casual inferences about depressive symptoms and serodiscordance for HIV.

Despite these limitations, the current findings have significant implications for future prevention programs focusing on serodiscordant couples and depressive symptoms. Couples in serodiscordant relationships face many ongoing challenges, which also heighten the threat to their mental health. The study showed that among this vulnerable group, women are even more susceptible to depressive symptoms, compared to men. This key finding is consistent with other studies; demonstrating a common parallel on gender differences and HIV. HIV-positive women experience high levels of distress (Sanders, 2008; Jarman et al., 2005), initiating a desire for psychological protection in their relationships (Jarman et al., 2005). A study

on HIV-negative women suggests gender inequality arises in serodiscordant relationships, escalating women's vulnerability to HIV infection (Persson & Richards, 2008). And finally the risk of HIV progression has been correlated to HIV-positive women with extensive depressive symptoms (Antelman et al., 2007). Studying gender differences within individual responses to HIV has implications for care, support, and treatment programs, especially for addressing the needs of women. To simply emphasize the traditional caring role of women in AIDS patient care might lead to wider gender inequality, leaving women even more vulnerable to the HIV epidemic. Future prevention programs focusing on serodiscordant couples should be planned to target HIV risk, as well as place a heavy emphasis on mental health, with a particular focus on women's increased susceptibility to negative mental health outcomes.

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