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## The Effects of HIV Onset, Gender and Casual Sex Attitude on Perceptions and Reactions towards PLHIV

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### *Abstract*

*The present study examined undergraduates' attributions (control, responsibility and blame), emotional responses (anger and sympathy) and helping intentions (personal help and support for institutional assistance) towards PLHIV in Singapore. A 2 x 2 between-subjects design using vignettes systematically manipulated HIV onset controllability (high: casual sex / low: unfaithful spouse) and PLHIV gender (male/female). Two hundred fifty-three undergraduates from the National University of Singapore participated in the study. Significant main effects of HIV onset controllability were found for participants' attributions, emotional responses and support for institutional assistance. A marginally significant main effect of HIV onset controllability was found for participants' personal helping intentions. A significant main effect of PLHIV gender was found for participants' sympathy. Participants' emotional responses mediated the relationship between attributions of control and support for institutional assistance. Participants' attitudes towards casual sex also moderated their anger and support for institutional assistance towards PLHIV with differing HIV onset conditions. Theoretical and practical implications are discussed*

### **Introduction**

There were 4558 HIV positive Singapore residents as of end 2013, most of whom contracted HIV through sexual transmission (Ministry of Health, 2014). These individuals are often ostracised or blamed for contracting HIV because they are presumed to be responsible for its onset (Herek, 1999). This contributes to the maintenance of HIV stigma, which remains widespread among the general population and health professionals in Singapore (Singh, 2013; Wong et al., 2012). HIV stigma can result in social rejection for people living with HIV (PLHIV) (Herek, 1999; Wong et al., 2012). PLHIV also experience discrimination in employment and healthcare (Chua, 2009; Wong, et al., 2012). This affects their general well-being and livelihood.

HIV stigma also hinders the effectiveness of HIV testing targeted at the general population and HIV risk groups as it has been cited as one of the chief reasons behind the low uptake of voluntary HIV testing in Singapore (Wong et al., 2012).

Given the wide-ranging impact of HIV stigma, numerous studies have attempted to understand its components and processes so as to facilitate measures that can better address this issue.

HIV remains a strongly stigmatised disease owing to four features: it is perceived to be caused by the victim, perceived to deteriorate over time, is infectious and inflicts obvious physical effects at late stages (Goffman, 1961; Jones, et al., 1984). Most studies have focused on the first feature in order to understand the attributions of control, blame and responsibility that underlie HIV stigma (Miller, Fellows, & Kizito, 2007). These studies were based on attribution theory, which states that individuals tend to seek information to explain the occurrence of an incident leading to negative consequences (Weiner, 1974). This results in attributions of control over the cause of the incident, the responsibility of individuals involved, and the blame that they must shoulder for the negative result (Weiner, 1974). Further research has extended the attributional process to consider

its effects on emotional and behavioural responses (Weiner, 1980). This forms the basis of an attributional helping model, which maps how attributions of control, blame and responsibility influence emotional and helping responses towards victims of negative incidents (Weiner, 1980; Weiner, Perry, & Magnusson, 1988).

Evidence has shown that the attributional helping model can predict emotional and helping responses towards PLHIV (Cobb & de Chabert, 2002; Dooley, 1995; Seacat, Hirschman, & Mickelson, 2007; Weiner et al., 1988). Specifically, individuals respond with more anger, less sympathy and less willingness to help towards PLHIV who are attributed greater control, blame and responsibility for the onset of their HIV condition (Mantler et al., 2003; Seacat et al., 2007). Additionally, emotional responses mediate the effect of control attributions on helping intentions (Seacat et al., 2007). These findings have been reported across different populations ranging from university and health care students to HIV social service providers (Cobb & de Chabert, 2002; Philip, Chadee, & Yearwood, 2014; Watson, Guagnano, & Davis, 2012). The attributional helping model also appears to have cross-cultural validity as it has been supported by research conducted in individualistic and collectivistic cultures (Miller et al., 2007; Weiner, 1995; Zhang, Rivkin, & An, 2013).

Subsequent studies have expanded the attributional helping model in the context of HIV by examining additional variables that influence attributions of control, blame and responsibility as well as emotional and helping responses towards PLHIV. These variables include mode of transmission as well as sexual orientation and PLHIV gender (Cobb & de Chabert, 2002; Dooley, 1995; Seacat et al., 2007). Of particular interest is the effect of PLHIV gender on attributions

and responses towards PLHIV. Despite evidence showing that female PLHIV experience higher levels of HIV stigma (UNAIDS, 2007), Borchert and Rickabaugh (1995) found that male PLHIV were attributed greater control as compared to female PLHIV for their HIV condition regardless of transmission mode. However, attribution of control was presented as the sum of participants' attributions of blame and responsibility in that study. This differed from later research on the attributional helping model, which suggested that attributions of control, blame and responsibility should be measured separately (Mantler et al., 2003; Weiner, 1995). Miller et al. (2007) also found that Kenyan participants attributed similar levels of blame to female and male PLHIV. However, Miller et al. did not assess attributions of control and responsibility towards female and male PLHIV. Lastly, Cobb and de Chabert (2002) reported that participants were more willing to help female PLHIV who had engaged in high risk behaviours because people are more socially inclined to help females as compared to males. However, Cobb and de Chabert had only examined social service providers' attributions, anger and helping responses towards female PLHIV who had engaged in high risk behaviours (ie. had high HIV onset controllability).

Given the limitations of these studies, it is worth exploring how PLHIV gender influences students' attributions, emotional responses and helping intentions towards PLHIV in both high and low HIV onset controllability conditions. As masculinity is associated with having greater behavioural and emotional control, it is possible that male PLHIV will be attributed greater control, blame and responsibility over their HIV condition as compared to female PLHIV (Borchert & Rickabaugh, 1995). Given the links among attributions of control,

emotional responses and helping intentions outlined in the attributional helping model, it is predicted that female PLHIV will elicit more sympathy and less anger as compared to male PLHIV. Participants will also be more willing to render personal and institutional assistance to female PLHIV.

Another reason for examining the impact of PLHIV gender in our study is the paucity of research in this area. Few studies have attempted to manipulate the gender of PLHIV or portray female PLHIV in their hypothetical scenarios (Borchert & Rickabaugh, 1995; Cobb & de Chabert, 2002; Seacat et al., 2007). Instead, most studies chose to depict male or gender-neutral PLHIV in their vignettes (Dooley, 1995; Mantler et al., 2003; Philip et al., 2014; Seacat et al., 2007; Watson et al., 2012; Zhang et al., 2013). This underrepresentation of female PLHIV is surprising given that 44% of adults living with HIV globally are female (UNAIDS, 2013). By examining attributions of blame, control and responsibility as well as emotional and helping responses towards both male and female PLHIV, this study hopes to address the gender imbalance in portrayals of PLHIV in extant literature.

Research on the attributional helping model also suggested that evaluators' attitudes towards casual sex might influence their emotional reactions and behavioural responses towards PLHIV (Seacat et al., 2007). This effect might be more pronounced for female PLHIV with high HIV onset controllability due to societal norms about female sexual behaviour. Specifically, females who engage in casual sex are perceived more negatively than males (Milhausen & Herold, 2002; Sprecher, Regan, McKinney, Maxwell, & Wazienski, 1997). Additionally, these perceptions might be held more strongly by participants with less accepting attitudes towards casual sex. The present study seeks to

test these postulations by examining whether participants' attitudes towards casual sex moderate the effect of female PLHIV's HIV onset controllability on their emotional and helping responses.

The current study seeks to reaffirm the attributional helping model by examining how the systematic manipulation of HIV onset controllability and PLHIV gender will influence undergraduates' attributions, emotional responses and helping intentions towards PLHIV in Singapore. Hypothesis 1 states that HIV onset controllability will affect participants' attributions, emotional reaction and helping intentions towards PLHIV. High HIV onset controllability (ie. contracting HIV through casual sex) will elicit stronger attributions (ie. greater control, blame and responsibility), more negative emotions (ie. greater anger and less sympathy) and decrease evaluators' willingness to help (ie. reduced personal assistance and support for institutional assistance) as compared to low HIV onset controllability (ie. contracting HIV through an unfaithful partner). Hypothesis 2 states that PLHIV gender will affect participants' attributions, emotional reaction and helping intentions towards PLHIV. Female PLHIV will elicit weaker attributions, less negative emotions and increase evaluators' willingness to help as compared to male PLHIV.

The present research also seeks to build upon the attributional helping model by examining the mediational processes outlined in the model and the potential moderating effect of attitudes towards casual sex. Hypothesis 3 states that participants' emotional reactions will mediate the effect of their attributions of control on their helping intentions. Specifically, participants' anger and sympathy will mediate the relation between their attributions of control and their willingness to personally assist the PLHIV. Their anger and sympathy will also

mediate the relation between their attributions of control and their support for institutional assistance for PLHIV. Hypothesis 4 states that attitudes towards casual sex will moderate the effect of female PLHIV's HIV onset controllability on participants' emotional and helping responses towards her. Specifically, participants with less accepting attitudes towards casual sex will report more negative emotions and be less willing to help female PLHIV with high HIV onset controllability as compared to participants with more accepting attitudes towards casual sex. No difference will be observed in their responses towards female PLHIV with low HIV onset controllability.

## Methods

### Participants

Study participants consisted of 253 undergraduate students from the National University of Singapore. 180 participants signed up as part of their research participation (RP) requirement for introductory psychology modules, and were awarded 1 RP point for their participation. The remaining 73 participants were recruited via word-of-mouth, and were not reimbursed for their participation.

A majority of participants was female (65.6%), with a mean age of 20.74 years ( $SD = 1.728$ ) and an age range of 19 to 27. The participants were predominantly Han Chinese (88.9%), followed by Indian (6.1%), Malay (3.3%), and other ethnicities (2.4%).

### Materials

**Vignettes:** The four vignettes portrayed a fictitious PLHIV who had recently been diagnosed with HIV. PLHIV gender (male/female) and HIV onset controllability (high onset control: casual sex / low onset control: unfaithful partner) were manipulated across the four vignettes to create a 2 x 2 between subjects design. Participants were required to complete two manipulation-

check items after reading the vignette to ensure that the manipulated variables (ie. the PLHIV's gender and how he/she contracted HIV) had been clearly communicated to them.

**Measures:** Participants were required to complete an accompanying questionnaire after reading the vignette. This questionnaire assessed (a) participants' attributions of control, responsibility and blame for the PLHIV portrayed in the vignette; (b) participants' emotional responses (ie. anger and sympathy) towards the PLHIV; (c) participants' helping responses towards the PLHIV (ie. their willingness to personally assist the PLHIV and their support for institutional assistance for the PLHIV); and (d) participants' attitude towards casual sex. Participants' demographic information (ie. age, gender and ethnicity) was also recorded.

**Attributions.** Participants' attributions of control, responsibility and blame were measured with three separate 4-item scales adapted from Manter et al. (2003). Items were scored on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree), with each scale containing two reverse-scored items. Example items from the control, responsibility and blame scales for the male PLHIV (John) condition are "John had no personal control over contracting HIV", "John is accountable for contracting HIV" and "It is John's fault that he contracted HIV" respectively. Participants could score a maximum of 28 points for each scale, with higher scores indicating greater attributions of control, responsibility and blame to the PLHIV for contracting HIV. All three scales had good internal reliabilities in the present study, with  $\alpha = .89$  for control,  $\alpha = .88$  for blame and  $\alpha = .91$  for responsibility. This matched previous studies that reported good internal reliabilities ( $\alpha$ s >

.80) for the three scales (Mantler et al., 2003; Seacat et al., 2007).

**Emotional responses.** The degrees of anger and sympathy that participants felt towards PLHIV in the vignette were assessed by two scales adapted from Mantler et al. (2003). Participants' anger and sympathy were measured with four and three items respectively on 7-point Likert scales ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Two items were reverse scored within each scale. Example items include "I am angry with John" and "I have sympathy for John". The anger and sympathy scales had maximum scores of 28 and 21 points respectively, with higher scores indicating greater anger and sympathy towards the PLHIV. Both scales had good internal reliabilities of  $\alpha = .87$  in the present study. This was similar to previous studies that reported good internal reliabilities ( $\alpha$ s > .80 and  $\alpha$ s > .85 respectively) for the anger and sympathy scales (Mantler et al., 2003; Seacat et al., 2007).

**Helping intentions.** Participants' support for institutional assistance and personal helping intentions towards PLHIV in the vignette were separately assessed with two scales. The 2-item Support for Institutional Help scale was adapted from Mantler et al. (2003) and used to measure participants' support for governments and hospitals helping the PLHIV. Items include "John deserves the best possible treatment by doctors, nurses, and all hospital staff" and "The government should help John". Participants rated themselves on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) for a maximum of 14 points, with higher scores indicating greater support for institutional assistance for PLHIV. Internal reliability ( $\alpha = .75$ ) of the Support for Institutional Help scale in the present study was acceptable,

albeit slightly poorer than the alpha ( $\alpha = .80$ ) reported by Mantler et al..

Participants' willingness to help the PLHIV portrayed in the vignette on a personal capacity was measured with the 6-item Personal Helping Intention Scale adapted from Seacat et al. (2007). Example items include "Accompany John to a HIV/AIDS support group". Participants rated themselves on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) for a maximum of 42 points, with higher scores indicating greater willingness to personally assist PLHIV. Internal reliability for the 6-item Personal Helping Intentions scale was good ( $\alpha = .88$ ) in the present study. This is similar to the alpha ( $\alpha = .88$ ) reported by Seacat et al..

**Attitude towards casual sex.** The 10-item permissiveness subscale of the Brief Sexual Attitudes Scale was used to assess participants' attitudes towards casual sex (Hendrick, Hendrick, & Reich, 2006). This adaptation was necessary as only permissiveness assessed individuals' attitudes towards casual sex; the other three subscales (sexual practices, communion, instrumentality) assessed the emotional and physical aspects of sexual behaviours, and were irrelevant to the purposes of the present study (Hendrick et al., 2006). Independent use of the permissiveness subscale has also been endorsed by its creators, thus justifying the adaptation in the present study (Hendrick & Hendrick, 1987; Hendrick et al., 2006).

Participants rated their attitudes on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) for a maximum score of 70 points. Higher scores indicated more accepting attitudes towards casual sex. Example items include "Casual sex is acceptable" and "I do not need to be committed to a person to have sex with him/her". Internal reliability of the

permissiveness subscale was excellent ( $\alpha = .93$ ) in the present study. This is similar to the high alphas ( $\alpha > .90$ ) reported by the scale creators (Hendrick et al., 2006).

### Procedure

Upon signing up for the study, participants received an email containing their participant number and a link containing one of four possible vignettes that they had been randomly assigned to read along with the accompanying questionnaire. Participants were instructed to read the vignettes and complete the accompanying questionnaire in their own time. Upon submission of the questionnaire, participants were sent a debriefing email detailing the aims and hypotheses of the study.

The vignettes and questionnaire were pilot tested with 12 undergraduates at the National University of Singapore. All pilot participants passed the manipulation-check items and noted that the vignettes were easy to understand. Minor edits were made to correct grammatical and spelling errors pointed out by the pilot participants.

## Results

Nine (3%) out of 253 participants failed one or both items in the manipulation check and their responses were excluded from the final analyses. The responses of the remaining participants ( $n = 244$ ) were analysed with IBM SPSS Statistics 19. A 2 (HIV onset controllability)  $\times$  2 (PLHIV gender) MANCOVA was conducted to test hypotheses 1 and 2. Hierarchical multiple regressions were ran to test hypotheses 3 and 4. Participants' gender was controlled for in every analysis as it has been shown to be a covariate of emotional reactions and helping intentions towards PLHIV (Dooley, 1995).

### Hypothesis 1

Hypothesis 1 states that HIV onset controllability will affect participants'

attributions, emotional reactions and helping intentions towards the PLHIV portrayed in the vignettes. Specifically, high HIV onset controllability will elicit stronger attributions, more negative emotions and decrease evaluators' willingness to help. The 2  $\times$  2 MANCOVA revealed a significant main effect of HIV onset controllability,  $F(7, 233) = 84.537, p < .001, \eta_p^2 = .72$ , on participants' attributions, emotional responses and helping intentions towards PLHIV.

Univariate analyses showed significant main effects of HIV onset controllability on participants' attributions, emotional reactions and support for institutional assistance (see Table 1). Participants attributed significantly greater control, responsibility and blame to the PLHIV if he or she was portrayed as contracting HIV through casual sex (high HIV onset controllability) as compared to contracting HIV through an unfaithful partner (low HIV onset controllability). Participants also reported greater anger and less sympathy towards PLHIV in the high HIV onset controllability condition as compared to PLHIV in the low HIV onset controllability condition. Participants were also less willing to endorse institutional assistance for the PLHIV in the high HIV onset controllability condition as compared to the low HIV onset controllability condition. There was also a marginally significant main effect of HIV onset controllability,  $F(1, 239) = 3.335, p = .069, \eta_p^2 = .02$ , on participants' willingness to personally assist the PLHIV. Participants were less willing to personally assist PLHIV in the high HIV onset controllability condition as compared to the low HIV onset controllability condition (see Table 1). Thus hypothesis 1 is supported as HIV onset controllability had significant main effects on participants' attributions, emotional reactions and institutional assistance, and a marginally

significant main effect on participants' willingness to personally assist PLHIV.

### Hypothesis 2

Hypothesis 2 states that PLHIV gender will affect participants' attributions, emotional reactions and helping intentions towards the PLHIV portrayed in the vignettes. Specifically, female PLHIV will elicit weaker attributions and less negative emotions, and increase evaluators' willingness to help. The 2 x 2 MANCOVA revealed a marginally significant main effect of PLHIV gender,  $F(7, 233) = 1.941, p = .064, \eta_p^2 = .06$ , on participants' attributions, emotional responses and helping intentions towards PLHIV.

Univariate analyses showed a significant main effect of PLHIV gender on participants' sympathy (see Table 2). Participants reported greater sympathy towards female PLHIV (Jane) as compared to male PLHIV (John). There were no significant main effects of PLHIV gender for participants' attributions, anger, and helping responses (see Table 2). This explains the marginally significant effect of PLHIV gender on participants' attributions, emotional reactions and helping responses in the multivariate analysis. Thus hypothesis 2 is partially supported. The 2 x 2 MANCOVA showed no significant interaction effect of HIV onset controllability and PLHIV gender,  $F(7, 233) = .200, p > .05, \eta_p^2 = .01$ , on participants' attributions, emotional responses and helping intentions towards PLHIV.

### Hypothesis 3

Hypothesis 3 states that participants' emotional reactions will mediate the effects of their attributions of control on helping intentions (personal and institutional assistance). Two hierarchical multiple regressions were first conducted to test the relationships between (a) participants'

attributions of control and their willingness to personally assist the PLHIV in the vignette; and (b) participants' attributions of control and their support for institutional assistance for the PLHIV. Participants' attributions of control predicted their support for institutional assistance for PLHIV ( $\beta = -.28, p < .001$ ). However, participants' attributions of control did not predict their willingness to personally assist the PLHIV ( $\beta = -.10, p > .05$ ). Thus no further regression analyses were conducted for the latter.

Subsequently, six regression analyses were conducted to test the mediational effect of participants' anger and sympathy on the relationship between attributions of control and support for institutional assistance. Participants' attributions of control predicted their anger and sympathy (anger:  $\beta = .61, p < .001$ ; sympathy:  $\beta = -.57, p < .001$ ). Participants' anger and sympathy were also found to predict their support for institutional assistance (anger:  $\beta = -.40, p < .001$ ; sympathy:  $\beta = .47, p < .001$ ). When participants' anger was controlled for, their attributions of control did not predict their support for institutional assistance ( $\beta = -.06, p > .05$ ). Similarly, participants' attributions of control no longer predicted their support for institutional assistance after controlling for participants' sympathy ( $\beta = -.02, p > .05$ ). This suggested that participants' emotional reactions (anger and sympathy) mediated the relationship between their attributions of control and support for institutional assistance. Thus hypothesis 3 is supported for participants' support for institutional assistance but not for personal assistance.

### Hypothesis 4

Hypothesis 4 states that attitudes towards casual sex will moderate the effect of female PLHIV's HIV onset controllability on participants' emotional and helping responses towards her. Specifically,



participants with less accepting attitudes towards casual sex will report more negative emotions and be less willing to help female PLHIV with high HIV onset controllability. No difference will be observed in responses towards female PLHIV with low HIV onset controllability. This is also not expected to be the case for male PLHIV. As such a three-way interaction between PLHIV gender, controllability and attitude towards casual sex is predicted. PLHIV gender was coded  $-.5$  for males and  $.5$  for females. Together with the centred HIV onset controllability and attitude towards casual sex, the three variables were used to compute four interaction terms: (a) PLHIV gender x HIV onset controllability x attitude towards casual sex; (b) HIV onset controllability x attitude towards casual sex; (c) PLHIV gender x HIV onset controllability; (d) PLHIV gender x attitude towards casual sex (Aiken & West, 1991).

A set of four hierarchical multiple regression analyses (controlling for participants' gender) were conducted to examine the 3-way interaction on participants' anger, sympathy, willingness to render personal assistance and support for institutional assistance for the PLHIV in the vignettes. The results are presented in Table 3. As can be seen in this table none of the three-way interactions were statistically significant indicating that Hypothesis 4 was not supported.

However, the 2-way interaction between HIV onset controllability and attitude towards casual sex significantly predicted participants' anger and support for institutional assistance. Thus attitude towards casual sex moderated the effect of HIV onset controllability on participants' anger and support for institutional assistance, an effect that was not dependent on the gender of the PLHIV. Figure 1 presents the relation between HIV onset controllability

and participants' anger when they have less accepting attitudes towards casual sex (1 SD below the mean) and more accepting attitudes towards casual sex (1 SD above the mean). Specifically, participants with less accepting attitudes towards casual sex reported a markedly greater increase in anger towards PLHIV with high HIV onset. Additionally, participants with more accepting attitudes towards casual sex reported greater anger towards PLHIV with low HIV onset. Figure 2 presents the relation between HIV onset controllability and participants' support for institutional assistance when they have less accepting attitudes towards casual sex and more accepting attitudes towards casual sex. Specifically, participants with more accepting attitudes towards casual sex were more willing to support institutional assistance for PLHIV with low HIV onset as compared to participants with less accepting attitudes towards casual sex. However, the differences in support for institutional assistance for PLHIV in the high HIV onset condition do not appear to be particularly large. No significant effects were observed for the two 2-way interactions between PLHIV gender and attitude towards casual sex, and between PLHIV gender and HIV onset controllability.

## Discussion

The present study found that PLHIV with high HIV onset controllability elicited more negative attributions and emotional reactions from participants. Participants were also less supportive of institutional assistance for PLHIV with high HIV onset controllability. These findings corroborate extant literature which stated that HIV onset controllability influenced attributions as well as emotional responses and support for institutional assistance towards PLHIV

(Dooley, 1995; Mantler et al., 2003; Seacat et al., 2007; Zhang et al., 2013). Additionally, participants' anger and sympathy mediated the relationship between their attributions of control and their support for institutional assistance in the present study. This novel finding extends the attributional helping model by showing that emotional responses mediate the effect of control attributions on indirect help such as support for policies that aid PLHIV.

Additionally, this first set of findings shows that participants do not respond uniformly to victims of sexually transmitted HIV. In the present study, participants' responses towards PLHIV varied as a function of controllability present in circumstances surrounding sexually transmitted HIV. This reflects the complex conditions of sexually transmitted HIV that might exist in reality, thus facilitating more realistic assessments of the model's practical applications. In this way, the present research builds on previous results which showed that participants' responses towards PLHIV vary with HIV transmission modes such as intravenous drug use and unprotected sex, but did not explore differences in responses towards PLHIV with similar HIV transmission modes (Dooley, 1995; Mantler et al., 2003; Seacat et al., 2007; Zhang et al., 2013). Future studies can examine whether variations in controllability of circumstances surrounding other HIV transmission modes like intravenous drug use can influence responses towards PLHIV.

Interestingly, the effect of HIV onset controllability on participants' personal helping intentions was marginally significant in the present study. Participants' attributions of control also did not influence their personal helping intentions, thus precluding the mediational effect of their emotional responses on this relation. These results differ from previous findings which reported

significant effects of HIV onset controllability on participants' willingness to personally assist PLHIV and a mediating effect of emotional responses on the relationship between attributions of control and personal helping intentions (Seacat et al., 2007; Weiner et al., 1988). The difference between the effects of HIV onset controllability on personal and institutional assistance suggests that the nature of assistance might have confounded participants' personal helping intentions. Unlike the distant nature of support for institutional assistance, personal assistance requires personal interaction with the PLHIV. A vast majority of Singaporeans are unwilling to have personal interactions with PLHIV to whom they have no blood relations (Health Promotion Board, 2012). As participants in the present study were undergraduates from a Singaporean university, a majority might be unwilling to personally interact with PLHIV who were portrayed as strangers. Indeed, the absence of any significant relationship between attributions of control and personal helping intention in the present study lends credence to the notion that participants' personal helping intentions were influenced by factors (eg. personal willingness to interact with PLHIV) other than the HIV onset controllability conditions. Future studies should assess individuals' willingness to interact with PLHIV alongside their personal helping intentions towards PLHIV in cultures with high HIV stigma to examine this confounding effect. It might also be more effective to target impersonal means of aiding PLHIV in these cultures as participants in the present study were more willing to support institutional assistance despite their misgivings about personally helping PLHIV. Future research can investigate this possibility.

With regard to PLHIV gender, participants felt greater sympathy towards female PLHIV in the present study. This is similar to a previous study which showed that female PLHIV elicit greater sympathy than male PLHIV (Norman, Carr, & Jimenez, 2006). The significant effect of PLHIV gender on sympathy in the absence of any accompanying significant effects on participants' attributions suggests that the greater sympathy reported towards female PLHIV was not brought about by differences in attributions of control for male and female PLHIV in the present study. Indeed, this can be expected as attributions of control are not the sole determinants of sympathy (Weiner, 1985). An alternative explanation for the significant effect of PLHIV gender on sympathy in the present study is the perception that females tend to suffer more from negative incidents (Loewenstein & Small, 2007). In the present study, the female PLHIV might have been perceived to be affected more severely by her HIV diagnosis, thus eliciting greater sympathy among participants. This perception might have also contributed to previous reports of greater sympathy towards female PLHIV (Norman et al., 2006).

This second set of findings also suggest that PLHIV gender might be less important than other PLHIV characteristics such as HIV onset controllability in influencing responses towards them. Nonetheless, future research should not ignore the role of PLHIV gender as it might assume greater importance in the absence of salient information. Weiner et al. (1988) noted that individuals base their attributions on salient information and ignore less salient information. Given the strong association between HIV and sexual behaviour as well as the restriction of the present study's HIV onset controllability conditions to casual sex and sexual contact with an unfaithful partner, PLHIV gender

might have been marginalised in favour of the HIV onset conditions when participants were forming attributions and responding to the PLHIV. Since details of the circumstances surrounding HIV infection might be withheld in media and campaign portrayals of PLHIV to protect their privacy, the effect of PLHIV gender in the absence of salient information warrants further investigation.

Two unexpected moderating effects of attitudes towards casual sex were also discovered despite the absence of support for Hypothesis 4. Participants with less accepting attitudes towards casual sex experienced greater increment in anger towards PLHIV with high HIV onset controllability. One possible explanation for this finding is the moral judgement of PLHIV (Lau & Tsui, 2005). Participants with less accepting attitudes towards casual sex might have stronger moral standards for acceptable sexual behaviour, thus leading to stronger moral judgement of PLHIV who were portrayed as contracting HIV through casual sex. It is also intriguing to note that participants with more accepting attitudes towards casual sex were more supportive of institutional assistance for PLHIV with low HIV onset controllability despite reporting greater anger towards these PLHIV. This differs from the attributional helping model, which predicted that greater anger reduces willingness to help (Weiner, 1995). If replicated, it might suggest the inclusion of evaluators' characteristics such as attitudes towards casual sex alongside target characteristics such as HIV onset controllability in the attributional helping model to improve its predictive value. Future studies should also assess the impact of other attitudes such as homophobia on responses towards gay or lesbian PLHIV.

Practical implications of the current research include the careful management of information about the causes of PLHIV's

HIV positive status to avoid reinforcing negative stereotypes of PLHIV and eliciting negative responses towards them. These negative responses can extend beyond the individual to include their withdrawal of support for policies favouring PLHIV, thus emphasizing the importance of such information management. Additionally, HIV awareness and anti-stigma messages can feature more sympathetic PLHIV such as HIV positive females in order to draw attention to this under-represented group (Wong et al., 2013). Media and campaign portrayals of PLHIV should also be mindful of the audience's attitudes and beliefs. Perhaps portrayals of PLHIV can focus on their everyday lives and avoid drawing undue attention to the causes of their HIV condition. This will help to foster a positive environment in which negative impressions of PLHIV and HIV stigma are not implicitly reinforced.

There are three limitations in the present study. Firstly, the vignettes used in the present study are short and simple. This simplicity facilitated the manipulation of independent variables and was useful in examining the attributional helping model in the Singaporean context. However, it might not capture all the nuances contained within a genuine account of HIV infection shared by a PLHIV, thus limiting the external generalisability of the current findings. Future investigations can address this by using more complex vignettes perhaps examining the influence of PLHIV's coping strategies and post-infection behaviour on evaluators' perceptions and responses. Secondly, the causes of HIV were limited to sexual transmission in the present study. While this yielded some interesting findings and made the present vignettes more representative of the HIV situation in Singapore, an exploration of other modes of HIV transmission (eg. IV drug transmission

and mother-to-child) in the Singaporean context will be informative as evaluators' attributions and responses to PLHIV have been shown to vary with HIV transmission modes. Lastly, the present study was conducted with undergraduates who are predominantly Han Chinese. As such, the current findings might not be generalisable to the general population. Replicating the current experimental paradigm with ethnically diverse participants drawn from the general population will help to enhance external generalisability of the present findings.

Nonetheless, the present results remain noteworthy due to their novelty and value for future research. To reiterate, evaluators' characteristics such as attitudes towards casual sex might enhance the predictive value of the attributional helping model in scenarios involving sexual transmission of HIV. The attributional helping model should also be tested with scenarios that reflect the complex realities of HIV transmission to assess its practical applications. Finally, efforts can be made to encourage impersonal aid or support for PLHIV in cultures with greater reluctance to interact personally with PLHIV. This could gradually foster greater social acceptance of PLHIV and serve as a positive step towards the creation of enabling environments that can safeguard and advance the rights of PLHIV.

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## Appendix

Table 1

*Main effects of HIV onset controllability on participants' attributions, emotional reactions and helping responses*

	High Onset		Low Onset Control		$\eta_p^2$	F(1,239)
	Control					
	Mean	SD	Mean	SD		
Control	22.23	4.02	10.17	4.00	.70	548.536*
Responsibility	21.50	4.03	10.14	4.34	.65	445.436*
Blame	18.39	4.77	8.92	3.95	.54	281.137*
Anger	14.34	6.10	8.41	3.97	.25	78.248*
Sympathy	14.46	4.24	18.62	2.53	.27	88.338*
Personal Assistance	29.69	7.60	31.45	7.06	.02	3.335
Institutional Assistance	10.61	2.46	11.68	1.99	.05	13.660*

\* $p < .001$

Table 2

*Main effects of PLHIV gender on participants' attributions, emotional reactions and helping responses*

	Male PLHIV		Female PLHIV		$\eta_p^2$	F(1,239)
	Mean	SD	Mean	SD		
Control	16.88	7.23	16.04	7.26	.01	3.308
Responsibility	16.45	6.94	15.67	7.16	.01	2.589
Blame	14.36	6.35	13.37	6.54	.02	3.637
Anger	12.09	5.81	10.94	6.08	.01	3.499
Sympathy	15.64	4.15	17.22	3.90	.05	13.057*
Personal Assistance	30.21	7.17	30.83	7.60	.01	.476
Institutional Assistance	10.95	2.43	11.28	2.18	.01	1.308

\* $p < .001$

Table 3

Regression coefficients in the 3-way interaction model (PLHIV gender x HIV onset controllability x attitude towards casual sex)

	Anger	Sympathy	Personal Assistance	Institutional Assistance
	$\beta$	$\beta$	$\beta$	$\beta$
HIV onset controllability	.50*	-.52*	-.12	-.23*
PLHIV gender	-.10	.20*	.05	.08
Attitude towards casual sex	-.20*	.17 <sup>†</sup>	.02	.07
HIV onset x PLHIV gender	.01	.04	-.01	.05
HIV onset x attitude towards casual sex	-.16*	.10	.04	.14 <sup>†</sup>
PLHIV gender x attitude towards casual sex	-.05	.02	.01	.03
HIV onset x PLHIV gender x attitude towards casual sex	-.01	.02	-.03	-.03

\* $p < .005$ ; <sup>†</sup>  $p < .05$





