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Henk Boer, Haile Gebreeyesus Hadera, Wilmad A.J.M. Kuiper

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**Using the theory of planned behavior to understand the motivation to learn about HIV/AIDS prevention among adolescents in Tigray, Ethiopia.**

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## USING THE THEORY OF PLANNED BEHAVIOR TO UNDERSTAND THE MOTIVATION TO LEARN ABOUT HIV/AIDS PREVENTION AMONG ADOLESCENTS IN TIGRAY, ETHIOPIA

In Ethiopia prevalence of HIV in the population in general in 2003 was 4.4%. (UNAIDS, 2005), with estimates for urban populations varying from 7.0% to 11.7% (Abebe et al., 2003). A high percentage of adolescents is sexually active (Alene et al., 2004; Taffa et al., 2003), while about 50% of the adolescents reported not to use condoms or to use condoms inconsistently (Adamu et al., 2003; Astatke & Serpell, 2000; Taffa et al., 2002; Taffa et al., 2003). Adamu et al. (2003) found that about half of the respondents had engaged in multi-partnered sex and in a study by Alene et al. (2004) 46% of rural high school students admitted sexual contacts with casual partners. In Ethiopia skills of protection against HIV infection are generally low (Yerdaw et al., 2002). Moreover, many adolescents have incorrect ideas about HIV/AIDS and the transmission of HIV/AIDS (Yerdaw et al., 2002), which may undermine HIV prevention behaviour (Boer & Emons, 2004).

It has been observed that in Africa students at higher learning institutions are often vulnerable to HIV infection, because of unprotected sexual behaviours that are common in residential campus areas (Kapiga & Lugalla, 2002; Terry et al., 2006). There is an urgent need for effective educational interventions to improve adolescent sexual health and these interventions must be replicable in an environment with severe constraints on financial and human resources (Kirby, 2000; Obasi et al., 2006). Various studies indicate that school or university based HIV prevention curricula can solve the financial and human resource constraints and can reduce the prevalence of sexual risk behaviour among adolescents (Campbell & Lubben, 2003; Kaaya et al., 2002; Kinsman et al., 1999).

Given the severe constraints on financial and human resources in Ethiopia, there is an urgent need for developing HIV/AIDS prevention education curricula that can easily be incorporated in universities. However, introduction of HIV/AIDS curricula seems to be slow in African higher learning institutes and many barriers exist to the effective implementation (Boler & Jellema, 2005). To date, several studies have focused on the needs and the motivation of teachers to implement HIV/AIDS prevention programmes (Obasi et al., 2006; Mathews et al., 2006; Kinsman et al., 1999).

However, effective HIV/AIDS prevention education would be problematic if the needs of students are not served adequately. Currently, little attention has been given to the motivation of the students to learn about HIV/AIDS and about their preferences for HIV/AIDS curriculum designs.

In many Sub Saharan African countries teaching sexuality and condom use in curricula may be controversial issues that students may be reluctant to address. This may be especially true for HIV/AIDS prevention curricula that focus on the life-skills approach, which addresses communication and condom negotiation skills and requires students to openly discuss HIV/AIDS in class (Boler & Aggleton, 2004). To minimize these controversial issues, many HIV/AIDS curricula seem to take a scientific approach, in which students are taught about HIV in science lessons such as biology, usually without any discussion of sexual relations or sexual behaviours (Boler & Jellema, 2005). However, HIV/AIDS prevention education that ignores sexual behaviour may be of limited purpose and the lack of motivation to address these controversial issues has to be overcome.

Interest and motivation of the students to learn about HIV/AIDS prevention are necessary for effective HIV/AIDS prevention. Self-regulating learning theories generally portray the learner as a goal-directed individual (Garcia & Pintrich, 1994). The motivation to learn is important in determining the level of cognitive engagement demonstrated by the learners (Dweck & Leggett, 1988). Expectancy-value theories of motivation have been the dominant perspective for examining motivation (Garcia et al, 1998). Students show an intrinsic goal for learning HIV/AIDS, when they engage in learning activities that are by themselves rewarding (Dweck & Leggett, 1988). These rewards may, for example, come from the perceived benefits of learning about HIV/AIDS and a strengthened self-efficacy to cope with HIV/AIDS prevention related problems. A number of expectancy value models have been proposed to study the motivation of the learners (Eccles, 1983). An often used expectancy value model that can be applied to study the motivation of learners is the Theory of Planned Behaviour (TPB; Ajzen, 1991). The TPB theorizes that attitude, subjective (social) norms and self-efficacy are the relevant determinants of motivation, which is usually assessed as the intention to perform behaviour, like learning about HIV/AIDS. Attitude to learning about HIV/AIDS is primarily a function of the beliefs about the positive and negative consequences of learning. Subjective or social norms refer to the perceptions of approval or disapproval of learning about

HIV/AIDS from significant others, like fellow students or teachers. Self-efficacy refers to the conviction to be able to perform the required behaviour in learning about HIV/AIDS, like discussing HIV/AIDS in class openly.

Another way to overcome to reluctance of the students to address HIV/AIDS may be the design of HIV/AIDS prevention curricula that are in accordance with the preference of the students. Kelly (2000) has distinguished three types of HIV/AIDS prevention curriculum designs. In the separate course approach HIV/AIDS prevention is designed as a free standing separate course in the broader school curriculum (Kaaya et al., 2002; Kinsman et al., 1999; Mathews et al., 2006; Obasi et al., 2006). This approach may ensure that HIV/AIDS prevention receives sufficient emphasis if HIV/AIDS prevention is given a high profile as an examinable course. However, in a crowded curriculum the separate course requires a strong commitment from teachers over time and a school- or university-based HIV/AIDS prevention policy formulation (Mathews et al., 2006). In the carrier course approach HIV/AIDS prevention is placed within an existing course, such as language, social studies, economics or engineering (Craig et al., 2004). In the integrated course approach HIV prevention education is to be incorporated in all or most courses. However, infusing HIV/AIDS across courses may mean diffusing HIV/AIDS prevention education and attempts to integrate HIV/AIDS across courses, taught by different so-called 'infusion' teachers, have not met with great success (Kann et al., 1995). Compared to health educators, infusion teachers were less likely to cover the more sensitive topics on HIV/AIDS prevention, and were more likely to take a scientific approach.

The aim of this study was to get insight into the determinants of the motivation of adolescents in Tigray, Ethiopia, to learn about HIV/AIDS prevention in their curriculum, using the TPB. Based on previous studies using the TPB in the area of HIV/AIDS prevention (Albarracín et al, 2001), we expected that the attitude to learn about HIV/AIDS prevention in the curriculum, self-efficacy towards discussing HIV/AIDS in class and social norms about HIV/AIDS prevention in the curriculum would be related to the motivation to learn. The second aim of the study was to assess the preference of the students for curriculum design options. It may well be that students prefer that sensitive issues like HIV/AIDS are not treated explicitly in separate courses, but treated more implicitly in the carrier subject approach or the integrated subject approach.

## METHOD

### Subjects

In this study, we used a sample of 100 students from the Department of Economics and the Department of English from Mekelle University, Ethiopia. Mekelle University is the only well established university in the region of Tigray and hosts students from all over Ethiopia. The language of instruction at Mekelle University is English since Ethiopia is a multilingual country. During their study most students live in Mekelle campus, a residential area with student housing.

### Questionnaire

The questionnaire was provided in English. The first part of the questionnaire assessed personal data of the respondents, like gender, age, department (Economics or English) and year of study (year 1-4). The second part assessed the psychosocial determinants of the motivation to learn about HIV/AIDS using multi-item scales. Items could be answered on four point Likert scales ranging from strongly disagree (1) to strongly agree (4). The perception of the quality of the current HIV/AIDS prevention practices was assessed with nine items, like 'At present the university gives sufficient time for teaching students life skills for adequately dealing with negotiating safe sex'. The items formed a reliable scale ( $\alpha = .80$ ). The opinion about the desired HIV/AIDS prevention practices were assessed with ten items like 'It would be a good idea if the existing university courses pay enough attention to HIV/AIDS prevention education'. The items formed a reliable scale ( $\alpha = .80$ ). Attitude to HIV/AIDS prevention education courses was assessed with four items like 'The inclusion of HIV/AIDS prevention into the curriculum promotes me to understand how HIV/AIDS will impact on my future professional life'. The scale was sufficiently reliable ( $\alpha = .55$ ). Social norms with regard to HIV/AIDS education in the curriculum was assessed with two items: 'I think the students of the university are positive about introducing HIV/AIDS into the curriculum of the university' and 'I think the instructors at the university find it a good idea to introduce HIV/AIDS in the curriculum'. The items formed a reliable scale ( $\alpha = .72$ ). Self-efficacy with regard to HIV/AIDS education in the classes was assessed with three items like 'I have the confidence to discuss sensitive matters, like sex and HIV/AIDS education in my class'. The scale was sufficiently reliable ( $\alpha = .51$ ). Motivation to learn

was assessed by two items: 'In the future I would like to learn about HIV/AIDS prevention in my courses' and 'In the future I will actively participate if the university develops a policy to introduce HIV/AIDS prevention education in the university'. The items formed a reliable scale ( $\alpha = .70$ ). The third part of the questionnaire assessed the preference of the students for HIV/AIDS prevention curriculum design options. For each of three design options (freestanding course, integrated course and carrier course) the students indicated their preference. The freestanding course option was described as 'HIV/AIDS prevention education is given to all students as an independent course', the integrated course option was described as 'HIV/AIDS prevention education is integrated across core courses to be taught by different instructors' and the carrier course option was described as 'HIV/AIDS prevention education is placed within existing courses, which are relevant to the issue, such as health and social science courses'. The students indicated their preferences on four point Likert scales ranging from strongly disagree (1) to strongly agree (4). For the purpose of pilot testing, the questionnaire was administered to a sample of five students leading to some minor modifications.

### **Data collection procedure**

The questionnaires were distributed a research assistant to the students after finishing classes. Most students filled out the questionnaire in the class and some were filled out by the students in their apartments and collected later based on appointments. Questionnaires were filled out anonymously and the students were assured that their data would be treated confidentially.

## RESULTS

### Characteristics of the sample

In total 100 adolescents were invited to participate. In total 89 adolescents agreed to participate (response rate 89%) of which 63 were male (71%) and 26 were female (29%). Almost all adolescents (97%) were between 20 and 24 years and 3% were between 25 and 29 years. Of the adolescents 23 (26%) were in the second study year, 26 (29%) were in the third study year and 37 (42%) were in the fourth study year.

### Motivation to learn about HIV/AIDS

--- Table 1 about here ---

Table 1 shows that the mean score on the perception of the quality of the current HIV/AIDS prevention practices was low (mean = 1.81). On the contrary, the adolescents had a positive opinion about the desired HIV/AIDS prevention practices, as indicated by the high mean score (mean 3.41). Of the adolescents, 85% agreed that it would be a good idea if the existing university courses paid enough attention to HIV/AIDS prevention education. The adolescents had a positive attitude to HIV/AIDS education in the curriculum, as indicated by the high mean score (mean 3.11). The social norm about HIV/AIDS education was around the midpoint of the scale, indicating that some adolescents perceived a positive social norm, while others perceived a more negative social norm with regard to discussing HIV/AIDS in the curriculum. This is illustrated by the fact that 58% of the adolescents agreed with the statement that the instructors at the university would find it a good idea to introduce HIV/AIDS in the curriculum, while 41% disagreed. The mean score on the motivation to learn was well above the midpoint of the scale (mean 3.02). This is substantiated by the finding that 77% of the adolescents agreed that in the future they would like to learn about HIV/AIDS prevention in their courses.

--- Table 2 about here ---



Table 2 shows the motivation to learn about HIV/AIDS has a significant positive correlation with the opinion about the ideal HIV/AIDS education practices ( $r = .34, p < .001$ ), the attitude towards HIV/AIDS education in the curriculum ( $r = .37, p < .001$ ) and to the social norm about HIV/AIDS education in the curriculum ( $r = .56, p < .001$ ). Contrary to our expectation, the motivation to learn about HIV/AIDS was not significantly correlated to the self-efficacy of the adolescents to discuss HIV/AIDS in class ( $r = .03, n.s.$ ). The motivation to learn about HIV/AIDS was not correlated with gender ( $r = -.02, n.s.$ ), age ( $r = .03, n.s.$ ) and study year at the university ( $r = -.14, n.s.$ ).

--- Table 3 about here ---

To disentangle the relative importance of the psychosocial determinants on the motivation to learn about HIV/AIDS, a regression analysis was performed (Table 3). The motivation to learn about HIV/AIDS could be significantly predicted by the psychosocial determinants ( $F(5, 82) = 10.82, p < .001, R^2 = .40$ ). Significant independent predictors of the motivation to learn were the opinion of the adolescents about the ideal HIV/AIDS prevention education practices ( $\beta = .26, t = 2.9, p < .01$ ) and the social norm towards HIV/AIDS prevention education in the curriculum ( $\beta = .47, t = 4.8, p < .001$ ).

### **Preferences about curriculum design options**

The mean preference score of the independent course was 2.90 (s.d. = .95), the mean preference score of the carrier course was 2.95 (s.d. = .89) and the mean preference score of the integrated course was 2.94 (s.d. = .87). There was no difference between preference of the adolescents for the types of curricula (Friedman  $\chi^2(2, N = 87) = 1.08, p = .58$ ).

--- Table 4 about here ---

Table 4 shows that gender and age were not related with the preference for each of the curriculum design options. However, study year was negatively correlated with the preference for carrier and

integrated curriculum design. Attitude to ideal HIV/AIDS prevention education practices and attitude to HIV/AIDS education in the curriculum were significantly positively correlated to the preference for an independent HIV/AIDS curriculum design, but not to the preference for carrier and integrated designs. The social norm to HIV/AIDS education in the curriculum was significantly correlated to all three types of curriculum design. Self-efficacy to discuss HIV/AIDS in class was not correlated with the preference for any of the curriculum design options. The motivation to learn about HIV/AIDS was significantly correlated with the preference for all types of curriculum design. Inspection of Table 4 shows that motivation to learn about HIV/AIDS was correlated most strongly with the preference for an independent curriculum design, and to a lesser extent with the preference for integrated and carrier curriculum designs.

To disentangle the relative importance of the psychosocial determinants on the preference for curriculum design options, regression analyses were performed (Table 5). The preference for the independent HIV/AIDS course design could be significantly predicted by psychosocial determinants ( $F(5, 78) = 11.49, p < .001, R^2 = .42$ ). Significant independent predictors of the preference for an independent curriculum design were social norm ( $\beta = .24, t = 2.24, p < .05$ ) and motivation to learn about HIV/AIDS ( $\beta = .39, t = 3.43, p < .001$ ). The preference for the carrier course design could be significantly predicted by the demographic and psychosocial determinants ( $F(5, 78) = 6.11, p < .001, R^2 = .28$ ). Significant negative independent predictors of the preference for a carrier curriculum design were study year ( $\beta = -.36, t = -3.67, p < .001$ ) and attitude to HIV/AIDS in the curriculum ( $\beta = -.28, t = -2.55, p < .05$ ). The preference for the integrated course design could be significantly predicted by the psychosocial determinants ( $F(5, 79) = 5.82, p < .001, R^2 = .27$ ). A significant independent predictor of the preference for an integrated curriculum design was social norm to HIV/AIDS education in the curriculum ( $\beta = .29, t = 2.45, p < .05$ ).

## DISCUSSION

It is often assumed that in Africa the slow introduction of HIV/AIDS curricula is related to the lack of motivation to discuss these controversial issues due to cultural barriers that prohibit to openly discuss sexual matters. Therefore, the aim of this study was to relate to motivation of adolescents to learn about HIV/AIDS to demographic and psychosocial determinants. Using the Theory of Planned Behaviour as a theoretical framework, results indicated the motivation to learn about HIV/AIDS in the curriculum was primarily related to social norms about the desirability of HIV/AIDS education. This indicated that social norms play an important role in shaping the motivation of adolescents in their motivation to learn about HIV/AIDS. The importance of social norms in shaping motivation is in agreement with the results from other studies in Africa, which indicated that social norms and communication are important elements in determining condom use (Boer & Mashamba, 2005; Boer & Westhoff, 2006). Contrary to our expectations, in this study motivation to learn about HIV/AIDS in class was not related to self-efficacy to discuss HIV/AIDS in class. The mean score on self-efficacy to discuss HIV/AIDS in class was high (mean 3.07 on a 4-point scale), indicating that lack of self-efficacy in this sample was not a barrier to the motivation to learn about HIV/AIDS. This shows that among these young adolescents self-efficacy does not seem to be a barrier to the desire to learn about HIV/AIDS. It must however be noted that the sample in this student consisted to a large extent of male students and it may well be that among female students self-efficacy to discuss HIV/AIDS is an important determinant of the motivation to learn about HIV/AIDS. Further research in this issue is of course necessary. Another finding in this study was that the motivation to learn about HIV/AIDS was not related to the perception of the current quality of HIV/AIDS education, but that it was positively related to the opinion of the students on the ideal HIV/AIDS prevention practices. This makes it clear that those students with high demands to the desired HIV/AIDS prevention practices are more motivated to learn. The value students placed on HIV/AIDS education was an important determinant of the motivation to learn.

The study was conducted among a sample of adolescents from a university in Ethiopia. The students had a rather negative opinion about the current HIV/AIDS prevention practices at the university, but showed a high demand for effective HIV/AIDS prevention education in the curriculum.

The motivation to learn about HIV/AIDS in the curriculum was also high. This indicated that among this sample of African adolescents there was no reluctance to learn about HIV/AIDS, but we could observe a desire for effective HIV/AIDS prevention education and a high motivation to learn. There was an equal preference among the adolescents for the three types of curriculum design options: independent, carrier and integrated. The adolescents did not have an outspoken preference for one type of curriculum design. This means that from a curriculum design perspective equal preferences could be given to an independent, carrier and integrated curriculum design.

However, results of this study pointed out that the different types of curriculum design are attractive for different types of students. A higher preference for the independent course on HIV/AIDS was significantly related to a positive motivation to learn, a positive social norm on HIV/AIDS education in the curriculum, a positive attitude to HIV/AIDS education in the curriculum and higher requirements to the ideal HIV/AIDS education practices. This reveals that an independent course is attractive for the highly motivated adolescents. With the preference for the carrier and the integrated options a more complicated picture was found with negative and positive factors related to this preference. In both cases, study year acted as a strong negative factor in the preference for these curricular design options. Also with these design options motivation to learn and the social norm about HIV/AIDS in the curriculum were positive factors in the preference for these options.

We can conclude from this study that in this sample of Ethiopian students, the motivation to learn about HIV/AIDS was high and has been primarily shaped by social norms. Self-efficacy was not related to the motivation to learn. Different types of curriculum designs were attractive to different types of learners, but the needs of the highly motivated adolescents seem to be best served by the independent curriculum design option.

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For Peer Review Only

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Table 1: The mean scores of the psychosocial determinants and the motivation to learn about HIV/AIDS among adolescents from Tigray, Ethiopia (n=89).

<b>Psychosocial determinants</b>	<b>Mean (sd)</b>
Perception current HIV education practices (1-4)	1.81 (.59)
Opinion on ideal HIV education practices (1-4)	3.41 (.48)
Attitude to HIV education in the curriculum(1-4)	3.11 (.65)
Social norm to HIV education in the curriculum (	2.70 (.78)
Self-efficacy to discuss HIV/AIDS in class (1-4)	3.07 (.73)
Motivation to learn about HIV/AIDS in the curriculum (1-4)	3.02 (.79)

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Table 2: Correlations between the psychosocial determinants and the motivation to learn about HIV/AIDS among adolescents from Tigray, Ethiopia (n=89).

<b>Psychosocial determinants</b>	(1)	(2)	(3)	(4)	(5)	(6)
(1) Perception current HIV education practices	-					
(2) Opinion on HIV/AIDS education practices	.06	-				
(3) Attitude to HIV education	-.05	.26*	-			
(4) Social norm to HIV education	.13	.22*	.41***	-		
(5) Self-efficacy to discuss HIV/AIDS	-.21*	.20	.40***	-.02	-	
(6) Motivation to learn about HIV/AIDS	.07	.34***	.37***	.56***	.03	-

Note: \*  $p < .05$ , \*\*\*  $p < .001$

Table 3: Regression of the psychosocial determinants on the motivation to learn about HIV/AIDS among adolescents from Tigray, Ethiopia (n=89).

<b>Psychosocial determinants</b>	$\beta$	$t$	$p$
Perception current HIV education practices	-.03	-.37	.71
Opinion on ideal HIV/AIDS education practices	.26	2.89	.005
Attitude to HIV education in the curriculum	.10	.90	.37
Social norm to HIV education in the curriculum	.47	4.76	.001
Self-efficacy to discuss HIV/AIDS in class	-.02	-.16	.87

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Table 4: Correlations between demographic characteristics and psychosocial determinants and the degree of preference for HIV/AIDS curriculum design options (independent, carrier, integrated) among adolescents from Tigray, Ethiopia (n=89).

	<i>independent</i>	<i>carrier</i>	<i>integrated</i>
<b>Demographics</b>			
Gender	.10	-.11	-.08
Age	.02	.01	.02
Study year	-.20	-.38 <sup>***</sup>	-.25 <sup>*</sup>
<b>Psychosocial determinants</b>			
Perception of current HIV education practices	.11	-.01	.11
Attitude to ideal HIV/AIDS education practices	.27 <sup>*</sup>	.16	.19
Attitude to AIDS education in the curriculum	.32 <sup>**</sup>	-.03	.16
Social norm to AIDS education in the curriculum	.51 <sup>***</sup>	.27 <sup>*</sup>	.43 <sup>***</sup>
Self-efficacy to discuss HIV/AIDS in class	.01	-.15	.08
Motivation to learn about HIV/AIDS	.62 <sup>***</sup>	.28 <sup>**</sup>	.44 <sup>***</sup>

Table 5: Regression of the demographic characteristics and psychosocial determinants on the motivation (intention) to learn about HIV/AIDS among adolescents from Tigray, Ethiopia (n=89).

	<i>independent</i>	<i>carrier</i>	<i>integrated</i>
	$\beta$	$\beta$	$\beta$
<b>Demographics</b>			
Study year	-.12	-.36***	-.19
<b>Psychosocial determinants</b>			
Attitude to ideal HIV/AIDS education practices	.13	.22	.16
Attitude to AIDS education in the curriculum	.01	-.28*	-.08
Social norm to AIDS education in the curriculum	.24*	.23	.29*
Motivation to learn	.39***	.08	.17