



## Control beliefs and health locus of control in Ugandan, German and migrated sub-Saharan African HIV infected individuals



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### ABSTRACT

**Objectives:** Little is known about the influence of control beliefs on antiretroviral drug adherence in patients who migrated from sub-Saharan Africa to Europe. The aim of this study was to explore the differences in health locus of control and control beliefs between HIV infected patients from sub-Saharan Africa with and without a lifetime experience of migration.

**Methods:** A sample of 62 HIV infected consecutive patients referred to the HIV clinics at the University Hospital of Münster (Germany) and at the Rubaga Hospital Kampala (Uganda) were enrolled into this study. We compared three groups of patients: sub-Saharan African migrants, German patients, and local Ugandan patients. We used the German health and illness related control beliefs questionnaire (KKG), the Competence and control beliefs questionnaire (FKK), and the Powe Fatalism Inventory-HIV/AIDS-Version (PFI-HIV/AIDS-Version) and translated these scales into English and Luganda. In addition, the patients' sociodemographic, acculturation, clinical, and immunological data were registered.

**Results:** Significant results were shown in HIV related external locus of control between migrated sub-Saharan African and local Ugandan patients compared to German patients. General control beliefs showed no significant differences. In the PFI-HIV-Version, there was a significant difference between migrated sub-Saharan African and Ugandan patients compared to German patients.

**Conclusions:** Our data suggest that the experience of migration does not influence the locus of control. Compared to German HIV patients, African patients in general showed a significantly higher external health locus of control which might have implications for drug adherence.

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### Introduction

Although the number of migrants from sub-Saharan Africa has decreased since 2004 due to changes in migration policy, the number of diagnosed HIV infections among migrants from sub-Saharan Africa (SSA) in Germany remained constant. In the group of patients infected by heterosexual transmission in Germany in 2011, 63% were migrants and 71% of them were from SSA. The number of patients from SSA who infected themselves after migrating to Germany has increased. Either transmission takes place in Germany or during visits in SSA [1,2].

Although health literacy (this includes the competencies related to accessing, understanding, appraising, and applying health information in the domains of healthcare, disease prevention, and health promotion) [3] is mostly on an average level, it has been shown that adherence to antiretroviral drugs is rather poor compared to other samples of patients. Earlier studies have discovered many influencing factors, e.g. cultural, socioeconomic, and individual factors [4,5]. Morbidity has been shown to be higher and life expectancy to be lower in this subgroup of patients which has consequences for quality of life, the socioeconomic situation, and stigmatisation [6–17]. It is also a burden on the national health care system. Besides psychosocial factors such as stress, social environment [18], and social support [19], intrapsychic factors might influence drug adherence in HIV infected individuals [20].

Our study focused on the exploration of general control beliefs and health related internal and external locus of control and the influence

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of life time experience of migration in SSA patients in Germany and Uganda. We aimed to discover intrapsychic factors which might influence antiretroviral drug adherence in this subgroup of patients in order to improve patient adherence of migrated patients in Germany in the future.

## Methods

### Participants and procedures

Patients were recruited from the internal medicine and neurological HIV clinics at the University Hospital of Münster (Germany) and from the Rubaga Hospital Kampala (Uganda). We excluded all patients with cognitive impairment (i.e. HIV associated neurocognitive disorder). In total, we enrolled a sample of 20 German HIV infected individuals (G), 20 HIV infected individuals migrated from SSA to Germany (M), and 22 HIV infected Ugandan (U) individuals. The migrated patients from SSA and in Uganda were black African. All German and Ugandan patients had no lifetime experience of migration. All African (M, U) subjects with no English skills at all were excluded.

All patients were informed about the study during their regular appointments in the outpatient clinics. They gave consent after having given the information about the study purpose and procedure. Latest viral load and CD4+ cell count were taken from their medical records. While answering the questionnaires, the interviewer was present and available for upcoming questions. For the Ugandan sample, local social workers were trained to assist with the interviews.

We developed an English and Luganda translation of the “German health and illness related control beliefs questionnaire” (KKG) and “Competence and control beliefs questionnaire” (FKK). We also developed a German and Luganda translation of Powe-Fatalism-Inventory-HIV/AIDS-Version. Re-translation was carried out by bilingual native speakers and compared to the original versions, and if needed corrections were conducted [21–24].

### Assessments

#### German health and illness related control beliefs questionnaire (KKG)

In this questionnaire, health locus of control is assessed in three dimensions: internal locus of control; social external locus of control; fatalistic external locus of control [25]. Internal locus of control represents a subject's belief in health related self-control (e.g. “If I take good care of myself, I will not get any physical disorders”; Cronbach's alpha 0.77). Social external locus of control represents a subject's belief in the power of other people, e.g. health professionals or other respectable persons such as older family members, to determine the subject's health status (e.g. “If I get physical disorders, I ask a specialist for help”; Cronbach's alpha 0.64). Fatalistic external locus of control represents a subject's belief in the influence of luck and fate on their health status (e.g. “Physical disorders cannot be influenced: If I am unlucky, they just occur”; Cronbach's alpha 0.77). The questionnaire consists of 21 items. Seven questions for each dimension have to be answered using a Likert scale. In this study, patients were asked to answer the questionnaire exclusively referring to their HIV infection.

#### Competence and control beliefs questionnaire (FKK)

Referring to subjective belief, FKK inquires generalised expectancy of competence and control over general action and life situations. The subjects' concepts of ability and control over uncertain situations in everyday life influenced by internal and external factors are measured [26]. FKK in contrast to KKG does not refer to illness but to general action and life situations. Control beliefs are influenced by causal attributions of events. “Self-concept” in reference to self-efficacy represents the expected course of action (e.g. “If I make plans, I am certain that these plans will be realized”; Cronbach's alpha 0.76). “Internality” represents the causal attribution to oneself (e.g. “It depends on me whether other

people respect my wishes or not”; Cronbach's alpha 0.70), “social externality” (e.g. “I have the feeling that many of the things which happen in my life depend on other people”; Cronbach's alpha 0.73) represents the causal attribution to other powerful persons, and “fatalistic externality” (e.g. “If I get what I desire, luck often plays a role”; Cronbach's alpha 0.75) represents the causal attribution to chance. The FKK consists of 32 items. The four primary scales are represented in eight items each and rated on a Likert scale.

#### Powe Fatalism Inventory-HIV/AIDS version (PFI-HIV/AIDS)

The PFI-HIV/AIDS is an elaborated version of the PFI, which was developed to assess fatalism in oncological patients. PFI-HIV/AIDS inquires fatalism referring to a subject's HIV infection [27–30]. 15 statements are presented to the subjects, and they are asked to evaluate them according to their very own opinion. They are able to choose between “Yes”, “No”, and “I don't know” (e.g. “I believe that if someone gets HIV/AIDS, it is already too late to do anything about it”).

### Sociodemographic data

To assess sociodemographic data we developed a short questionnaire, which was used as a guideline for an interview conducted with the patients. Additional questions assessing the degree of acculturation in Germany were presented to the group of M patients.

### Data analysis

Data analysis was conducted with SPSS version 18.0. Sociodemographic data was analysed using means and standard deviation. After testing for normal distribution by Kolmogorov–Smirnov test and Shapiro–Wilk test, results from FKK, KKG PFI-HIV/AIDS and sociodemographic data was analysed by analysis of variance with Levene's test as post hoc test and Kruskal–Wallis analysis with Mann–Whitney U test as post hoc test. Gender was analysed by using chi-square test. We additionally conducted an analysis of FKK, KKG and PFI-HIV/AIDS results with respect to the degree of education comparing all patients divided into two groups (E1: with a maximum of 8 years of school education; E2: with more than 8 years of school education) by using Mann–Whitney U test. In accordance to the test description, KKG and FKK raw scores were converted into t values. PFI-HIV/AIDS scores were analysed as raw scores. Significance level was set at  $p = 0.05$ .

**Table 1**

Sociodemographic data of the three groups of HIV infected subjects. Data are presented as arithmetic mean with standard deviation or as percentage. Comparison by Kruskal–Wallis analysis with Mann–Whitney U test as post hoc test, comparison of gender by chi-square test (na denotes not applicable; ns denotes not significant).

	Migrants (n = 20)	Ugandan (n = 22)	German (n = 20)	Significance
Age (years)	38.1 ± 11.8	35.3 ± 7.2	44.0 ± 11.8	$p < 0.032^a$
Sex				$p = 0.002$
Male	60%	36%	85%	
Female	40%	64%	15%	
Schooling (years)	10.7 ± 4.9	10.6 ± 4.7	12.8 ± 2.6	ns ( $p = 0.385$ )
CD4+ cell count/μl	253 ± 284	264 ± 428	445 ± 358	ns ( $p = 0.275$ )
Viral load/ml	3914 ± 2221	No data	356 ± 2321	ns ( $p = 0.332$ )
Years since diagnosis	5.1 ± 4.3	3.2 ± 3.3	10.3 ± 7.7	$p = 0.002^a$ $p = 0.044^b$
Years in Germany	7.1 ± 4.7	na	na	
Family members in Germany	55%	na	na	

<sup>a</sup> Ugandan versus German.

<sup>b</sup> Migrants versus German.

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