**Hope: a new approach to understanding structural factors in HIV acquisition**

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**ABSTRACT**

This paper presents the first empirical results of a long term project exploring the use of hope as a concept summarising people's experience of the social, economic and cultural world they inhabit. The work has its roots in a critical view of attempts to understand socio-economic aspects of HIV/AIDS epidemiology through recourse to the term "structural drivers". Such "drivers" are difficult to define and confusingly use a term drawn from policy rhetoric in the context of social science. Here, an entirely different theoretical approach is described, one based on emergent social properties, an idea derived from the Durkheim's notion of a "social current". One such emergent property is hope and its potential use and applicability as an epidemiological variable is described. The variable is measured using the Snyder scale developed by the late Rick Snyder for quite other purposes in the USA. Here we use data from the long standing UK MRC/UVRI General Cohort Study in Uganda together with a smaller study of some fishing communities. The results show that the Snyder scale does: (a) measure a real variable; (b) mean something to Ugandan rural populations; (c) can be used to explore some known risk factors for HIV acquisition.

**KEY WORD**: HIV/AIDS, hope, Uganda, structural drivers, social science

## 1. Introduction

Here we report the first empirical findings of a larger project exploring the role of the variable *hope* as a way to access what have been described as "structural factors" in transmission of HIV and possibly some other sexually transmitted infections (STIs). The theoretical ideas behind this work have been described elsewhere (Barnett, 2007; Barnett, 2008; Barnett & Weston, 2008). In this paper we examine applicability of a hope scale developed and validated on US populations in a non-US context, Uganda.

## 2. Background

Uganda's HIV epidemic is of long-standing (Serwadda et al., 1985). Insofar as this project concerns hope and infectious disease in Uganda, some background is appropriate. Uganda became independent from Britain in 1962 and it is 40 years since HIV/AIDS first appeared there.

Immediate post-independence optimism was followed by increasing instability and insecurity under the rule of Milton Obote in the latter 1960s. Idi Amin's coup in January 1971 certainly did not bring peace. In August 1972 he expelled all Asians, most of whom did not have Ugandan citizenship, expanding the public sector to take over their expropriated properties and businesses. The result was economic chaos, which continued when Obote returned to oust Amin in 1979. These events were particularly disruptive for people living close to the Tanzanian border, the site of our study. Here there was considerable fighting between Obote's forces and Tanzanian troops invading from Tanzania and Amin's army backed by Libyan troops. In 1986, when current president Yoweri Museveni took power the area was less directly affected by fighting but experienced economic and political turmoil (Tadria, 1985). The HIV epidemic followed closely, touching nearly every family in southern Uganda (Barnett & Blaikie, 1992; Hansen & Twaddle, 1995; Iliffe, 2006, pp. 23-26). Yet, over the past 25 years these people have lived in a relatively peaceful environment, although with uneven and limited levels of economic growth, (J. Seeley, 2014) characteristic of a "land-locked, resource-scarce country with bad neighbors" (Collier, 2007, p. 53).

This paper uses data collected in Uganda and derived from two sources:

(i) A long term cohort study, the General Population Cohort (GPC), established in 1989 by the UK Medical Research Council (MRC) and the Uganda Virus Research Institute (UVRI).

Located in Kalungu District, south-western Uganda, a population of approximately 10,000 people in a cluster of 15 villages was studied from 1989 to 1999[i]. In 2000 the study was expanded to cover a further 10 villages. The researched population includes approximately 20,00 0 people[ii];

(ii) A smaller population outside the GPC cohort. This is the Fisher Folk Study (FFS) (G. Asiki et al., 2011; Janet Seeley et al., 2012). The FFS village included in this study is a small settlement on the shores of Lake Victoria. The population engages in a mixture of fishing and farming. The FFS, conducted from 2009-2011 in five fishing villages, assessed HIV prevalence and incidence, risk factors for HIV infection and the feasibility of conducting future trials in what was believed to be a highly mobile population (Asiki et al. 2011).

## 3. The general hypothesis

Over the last decade, the term "driver" has increasingly been used in the HIV/AIDS policy research community and even in the wider infectious disease community (Adimora et al., 2006; C., 2007; Chen et al., 2006; Curtis & Aunger, 2011; Dickinson & Stevens, 2005; Gillespie, Kadiyala, & Greener, 2007; Leendertz et al., 2006; Liverani et al., 2013; Moreno, 2006; Morisky, Nguyen, Ang, & Tiglao, 2005; Orenstein, 2006; Polley, 2005; Renton, Gzirishvilli, Gotsadze, & Godinho, 2006; Sopheab, Fylkesnes, Vun, & O'Farrell, 2006; Sumartojo, 2000; Sunmola, 2005; Walsh, Breuer, Sanz, Morgan, & Doran-Sheehy, 2007; Williams, 2005). Attempts at defining these "drivers" appear most recently in a series of publications (Auerbach, Parkhurst, & Cáceres, 2011; Gupta, Parkhurst, Ogden, Aggleton, & Mahal, 2008; Parkhurst, 2013). In this context "drivers" describes "the patterning of human sexual behaviours…deeply embedded in, and shaped by, underlying social, economic, and legal-political structures …" and it is claimed that this framing term can contribute to reducing HIV risk by identifying " changes in broader structural elements (be they economic opportunities, social norms and gender roles, legal freedoms, or combinations of these factors)" (Parkhurst, 2013, p. 1).

The idea of "drivers" avoids theoretical problems associated with the more precise and logically demanding idea of "cause" (Hume & Flew, 1962; Hume, Millican, & ebrary Inc., 2007; Read & Richman, 2000). In common policy related usage which has seeped over into social science discourse, it points to what are broadly described as "structural factors" and their assumed effects on rates of HIV sero-prevalence. It has been deployed in part to balance the assumption that behavioural changes apparently necessary for HIV prevention are often viewed as inhering exclusively in individuals and from some perspectives, are solely the responsibility of individuals. This perspective is often deployed to interpret many other areas of human weakness[5], from alcohol use to obesity. Experience shows that individual behaviour change is a very difficult, not least where sexual behaviour is concerned because of the social nature of human beings and the simultaneously very private but also intensely socio-cultural nature of human sexuality. The relatively unexplored insight that broader social, cultural, economic and even environmental factors may affect HIV transmission has been present in discussions of HIV prevention for at least 30 years (Barnett & Blaikie, 1992; Barnett & Parkhurst, 2005; Barnett & Whiteside, 2006; Mann, Tarantola, & Netter, 1992; Sumartojo, 2000; Tarantola & Gruskin, 2004).

Such insights about "broader" "structural" "factors" and "drivers" are undoubtedly useful. They may even in some sense be "true". However, the capacity of current social sciences to engage with them is limited. Two interesting papers (Glass & McAtee, 2006; Janes, Corbett, Jones, & Trostle, 2012) argue for an increased contribution from the social sciences to our understanding of infectious

[5] This word is used ironically to note the often implicit moral judgement informing such perspectives when they inform social policy.

disease transmission. However, unfortunately there are few if any innovative, rigorously derived insights to be gained from most of those social sciences. In the main, the observation that there are "social factors" continues to be repeated and the term "drivers" remains unexamined because its use guards against any closer examination of the relation between these "social factors" and the vexed concept of "cause". Among the best account of the role of these "drivers" is a recent paper by Parkhurst (2013). Here structural drivers are said to drive risk and some chains of interlinked causality are sketched out. But the central structure-agency problem in social sciences is not confronted (Giddens, 1979) and as it remains unexamined, social scientists will make no useful contribution to disease prevention.

Here we begin from a different perspective, one which, while cognisant of the role of structural factors, avoids trying to specify what these might be. Instead it confronts the underlying structure-agency problem in social sciences (Barnett, 2007; Barnett, 2008; Barnett & Weston, 2008; Giddens, 1979) by going around it.

The point is as follows: we could spend several careers trying to specify different portfolios of "structural factors" and suggest how these might act as "drivers". In that specification we might indeed pursue measurement of the relative effects of such component factors in the universe of behavioural multiple causality. The sad truth is that the results of any such explorations would arrive long after the people whose behaviour we might have wanted to influence (and indeed the researchers) would probably have died of old age, let alone from a sexually transmitted infection. What is now required if there is to be any practical result from such deliberations, is an entirely different approach. In what follows we describe that approach briefly and then report on research which forms part of a programme to test that approach in Uganda and in Tanzania.

The key but not very contentious theoretical assumption is that human beings in their everyday experience negotiate a path between their individual wills and the constraints of the world they inhabit, a world which can also be understood to inhabit them through their consciousness. Rather than endeavouring to *solve* the structure-agency paradox, we suggest that there is instead a range of sociological concepts which describe people's life-world as that balance between selfhood and external structures. In other words, each individual experiences the properties of the constraining structure of their world. This internal world is an emergent property of the complex of structures within which their life takes place.

The classical nineteenth century sociologist, Emile Durkheim, wrote of this problem when he described suicide, that apparently most solitary of act, as paradoxically also an intensely social act because it reflected the action of what he called "social currents" on the individual (Durkheim & Catlin, 1938; Durkheim & Simpson, 1970). From this perspective, when people look to the future, they adjust their expectations and in particular in the present context, their assessment of risk, and act on the insights, perceptions, knowledge and beliefs they have about themselves and their social, cultural, economic and ontological environment. They then formulate their expectations and actions in terms of their hopes.

Here we posit that individual and group hope schedules affect individual and group risk perception and behaviour and that further there is a relationship between hope, risk exposure and acquisition of HIV and/or behaviours which are known to increase risk of HIV acquisition (Barnett, 2007; Barnett, 2008; Barnett & Weston, 2008). We do not report on a rigorous test of that hypothesis in this paper; we merely report on a first step in such a test by assessing the applicability of a particular research instrument. In so doing, we also present some very preliminary results.

## 4. Discussion of what the scale is supposed to do and whether it is measuring anything and if so what?

The late C.R. (Rick) Snyder (a US based exponent of "positive" psychology and its application to improving motivation) defined hope "as the process of thinking about one's goals, along with the motivation to move toward (agency) and the ways to achieve (pathways) those goals." (Snyder, 1995). To explore these ideas he developed the State Hope Scale (Snyder et al., 1996). This is a simple scale for measuring an individual's level of hope along the two axes of *agency* ("successful goal-directed determination") and *pathway* ("successful goal-directed planning"). This conceptualisation of hope does not describe a vague sense of hopefulness. It is more tightly defined and endeavours to define hope as a state where goals are formulated and realistic pathways are identified through which those goals may be pursued. Thus it combines the two elements already referred to above, the interior aspiration as well as the individual's implicit knowledge and assessment of the context within which those aspirations may be pursued. The original scale (Snyder et al., 1991) consists of the following 12 questions (of which four are fillers designed to distract the subject from the true focus of the research instrument ) and was scored as indicated below:

The Hope Scale

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1=Definitely False 2=Mostly False 3=Mostly True 4=Definitely True

1. I can think of many ways to get out of a jam (Pathways)
2. I energetically pursue my goals (Agency)
3. I feel tired most of the time (Filler)
4. There are lots of ways around any problem (Pathways)
5. I am easily downed in an argument (Filler)
6. I can think of many ways to get the things in life that are important to me (Pathways)
7. I worry about my health (Filler)
8. Even when others get discouraged, I know I can find a way to solve the problem (Pathway)
9. My past experiences have prepared me well for my future (Agency)
10. I've been pretty successful in life (Agency)
11. I usually find myself worrying about something (Filler)
12. I meet the goals that I set for myself (Agency)

(Snyder et al, 1991, p. 585).

The two sub-scales are scored on a Likert scale with a maximum score on each sub-component (Agency/Goal and Pathway/Planning) of 16 and a maximum score of 32 on the full hope scale. In later versions of the scale, Likert scoring scales of more than four points were used, sometimes up to eight intervals.

When developed and tested in the USA, the scale was shown to be robust and valid on the usual criteria: internally consistent, good test-retest reliability, good convergent and discriminant validity and evidence suggesting that Hope Scale scores augmented the prediction of goal-related activities and coping strategies beyond other self-report measures. In addition, construct validation support was provided with regard to predicted goal-setting behaviours, and corroboration of goal appraisal processes accompanying the various levels of hope (Snyder et al., 1991). As far as is known, the scale was not tested outside of the USA during its development, and was used only once on a non-

indigenous population in the USA[6]. Since then it has been translated and found comprehensible, consistent and valid in Arabic (Abdel-Khalek & Snyder, 2007). A recent study (G. Boyce & Harris, 2013; G. D. Boyce, 2013) has used the scale in South Africa, but the instrument was not translated into a South African language although the respondents were African[iii]. It has also been observed that "…hope may be a luxury that those in the western world have access to" (Hanson, 2011), a point to which we shall return below. It is also evident that use of such an approach will ultimately necessitate consideration of variability of hope over time both in individuals and in groups (Krueger & Schkade, 2008). We do not explore this question here, merely observing that all perceptions and subjective states vary over time, as indeed do physiological states such as blood pressure (Blanchflower & Oswald, 2007), and such questions will be explored in the future for hope as they have been extensively for happiness. For now we: (a) report on the use of the Snyder hope scale in a Ugandan rural population; (b) note that this empirical exploration forms a small part of a wider theoretical enterprise engaging with social science, epidemiology and disease control.

As the first step in testing our hypotheses about hope and its association with HIV acquisition and/or behaviours known to increase infection, we wanted to assess the suitability of the Hope Scale for use in Uganda. To this end, the scale was independently translated by two translators from the US English original to Luganda and then back-translated. From these translations an agreed Luganda translation was developed. Translation and back translation did not present many difficulties, the main one being the US English colloquial term "jam" to mean "difficulty". This was resolved. The version of the hope scale with which we began had an 8 point Likert scale. Attempts to use such a finely differentiated scale were informative. Translation of the 8 point scale was more problematic since wording to denote the finer degrees of difference in `false' and `true' statements was difficult to achieve and pre-testing of the scale with Luganda speakers confirmed that while gradations for a six point scale was possible, wording for gradations for 8 points was not. The agreed translation of the scale and scoring was then tested in two populations. It was administered as a component of a longer interview and was not self-administered as community levels of literacy were not high. Use of a six point Likert scale means that for the Uganda data, the maximum score on the scale was 48 and for each of the two main elements, agency and pathway, the maximum score was 24.

Here we examine the responses to the Hope scale of respondents in our two sites, the GPC and the FF study village. The objectives of the analysis were to:

a) Examine the scores obtained on the Hope scale and the two sub-scales in each site;
b) Investigate factors associated with the overall Hope scale and the two subscales in each site;
c) Compare the results on the scales between the two sites;
d) Explore the association between risky behaviours and the overall Hope scale and the two sub-scales in the FFS site.

Choice of two different populations in the same district, situated 25 kilometres apart (one on the shore of Lake Victoria and the other inland) allowed us to test the instrument in a general population where HIV incidence is low and at a fishing site where HIV incidence is much higher (see Seeley *et al*. 2012). The particular villages from the general population cohort were selected from the set of 25 villages from which the cohort was drawn because the biennial demographic and medical survey for the larger study was conveniently taking place in those villages at the time we were able to collect data for this study. The fishing village was selected from two adjacent villages included in a FFS in 2009-2011. The smaller of the two villages was selected not only because of size but also because there was less on-going research activity at the site.

[6] Personal communication. It was apparently tested on a Korean population in New York.

The sample from the GPC cohort consisted of 100 consenting adult participants in two village surveyed during the biennial survey round of the GPC (each village has approximately 500 adults). Data collection for that survey takes place at a hub, a centrally located place in the village where the team is based for the two to three week period of data collection (Gershim Asiki et al., 2013). One person was selected randomly from the first four men and first four women who came to attend the GPC data collection at the hub, thereafter the fourth man/woman after that was selected until the necessary sample number was reached. The sample from the fishing village consisted of 74 people (roughly equal numbers of men and women) randomly selected from the total sample of 150 people who participated in the FFS project.

A smaller sample was drawn in addition to the two random samples of people who answered the hope questions. These people were interviewed at length to provide a qualitative data set. These respondents were adults not selected for the quantitative data collection. At each of the two sites, thirty people were selected for the individual interviews. In the GPC this was done at the end of each day at the hub by randomly selecting five identification numbers from those not selected to test the hope scale. Those chosen were visited by an interviewer the following day. Eleven men and twelve women agreed to be interviewed. In the fishing village 15 men and 15 women were selected, and all participated in the interviews.

The Hope Scale was completed for each participant by the interviewer and an Ultra Mobile Personal Computer was used for data capture. The individual interviews did not have a formal guide. People were asked to talk about their past life and their plans for the future, *without* the interviewer specifically prompting for themes about `hope' or which made respondents feel `hopeful'. These interviews were tape recorded and later transcribed into Luganda and translated into English.

## 5. Hope Scores in the two study groups

In the GPC ninety six respondents completed the Hope questionnaire. For the overall Hope scale, the mean score was 36.8 (s.d. 5.2), with mean score for the Agency sub-scale 18.2 (s.d. 3.1) and mean score for the Path subscale 18.6 (s.d. 3.3). Reliability of the two sub-scales and the Hope scale was measured using Cronbach's Alpha (Cα) (Spiliotopoulou, 2009; Tavakol & Dennick, 2011). For the full Hope scale the Cα was 0.54, which was also the value for the Path sub-scale, while for the Agency subscale it was 0.43. In the FFS cohort, seventy four respondents completed the questionnaire. For the overall Hope scale, the mean score was 41.1 (s.d. 4.1), with mean scores for the Agency sub-scale of 19.3 (s.d. 3.0) and for the Path sub-scale of 21.8 (s.d. 2.2). The Cα for the full Hope scale was 0.43, for the Path sub-scale 0.47, and for the Agency sub-scale 0.24.

### Factors associated with the scale scores in the GPC

Table 1 shows the scores on the two subscales and the overall Hope scale broken down by levels of the available explanatory factors. In unadjusted models the scales varied either statistically significantly ($P<0.05$) or marginally significantly ($0.05<P<0.10$) between levels of the following factors:

#### Path Score

There was a marginally significant relationship between age when categorized and the path score ($P=0.06$), with the youngest age group (15-19 year olds) having a higher mean path score than other age-groups. However there was no evidence of a trend in path scores with increasing age. The path score varied significantly ($P=0.02$) with the quality of roof of the household; the mean path score was highest (19.37) for those with a good quality roof (the categories were good, fair, poor) but was lower for those with a fair roof (17.23) than those with a poor roof (18.73). The path score was significantly ($P=0.009$) higher for those who owned their own house (18.89) than for those who did not.

**Agency Score**

There was a significant linear trend of agency score increasing with age (P=0.048), with an increase in agency score of 0.36 units for each 10-year increase in age. The mean agency score was significantly (P=0.04) higher for those who owned "other" land (18.85) than for those who did not (17.56).

**Hope Score**

The mean Hope Score varied significantly (P=0.03) with the quality of the roof of the household, being highest for those with a good roof (38.02), but lower for those with a fair roof (34.83) than for those with a poor roof (36.67). The mean Hope score was significantly (P=0.02) higher for those who owned a house (37.22) than for those who did not (32.89). The mean Hope Score was also significantly (P=0.04) higher for those whose households owned other (additional land) (37.92) than for those who did not (35.71).

Exploratory multiple regression models were fitted to find factors associated with each scale adjusting for other factors. A liberal P-value of 0.10 was used to explore any factors that may be associated with the scales. The results are summarised in Table 2 and commented on in the next paragraphs.

For the Path Scale three factors were marginally significant, namely education level of the respondent, the quality of the roof of the respondent's house, and whether the house was owned by the respondent or his/her family. The Path score was highest for those whose house had a good roof, and lowest for those with a fair roof; on average the mean Path score was 2.09 units higher if the house was owned by the respondent. The effect of level of education was measured relative to those who had primary education. Compared to these respondents the mean Path Score was lower for those who had no education. It was also lower for those who had secondary education, perhaps reflecting the poor employment opportunities for those who had completed secondary education but been unable to move onwards and therefore experienced frustration of their aspirations (Westaway, Barratt, & J., 2009), and (adjusting for the other two factors which are measures of socio-economic status) was only slightly higher for those who had some further education.

For the Agency scale only age, as a continuous variable with a linear effect (P=0.045) and whether the household owned other land (P=0.039), were significant. The agency score increased on average by 0.35 for every 10 year increase in age, so the magnitude of the effect was not very strong, while participants from households that owned other land on average had an agency score 1.29 units higher.

For the Full Hope scale, significant factors were whether the house was owned by the participant or their family (P=0.023), whether the household owned other land (P=0.018) and whether the household employed other workers (P=0.037). The Hope score was on average: 4.07 units higher for participants who owned their house and 2.64 units higher for participants who owned other land, but was 3.17 units lower for participants for whom the household employed workers. In all but one of the 15 cases of households who employed workers, these were temporary workers so this might be indicative of an inability to cope with the work rather than having sufficient wealth to be an employer so as to follow a profit maximising strategy.

**Factors associated with the scale scores in the FFS Cohort**

Table 3 shows the scores on the two subscales and the overall Hope scale broken down by gender, age and HIV status, which were the only available explanatory factors for all 74 participants from the

FFS (as the majority were subsequently screened out of the main cohort). Neither gender nor age nor HIV status approached statistical significance.

The mean scores on both sub-scales were similar for males and females. Ignoring the two participants aged below 20, there was some evidence of an increasing trend in the agency score with increased age, although this did not reach statistical significance. The scores were very similar for participants irrespective of whether they tested HIV positive, HIV negative or did not have an HIV test.

**Comparison between the two groups**

There was overwhelming evidence ($P<0.0001$) that the mean path score was higher in the FFS cohort (mean 21.8) than in the GPC (mean 18.6). There was also strong evidence ($P=0.02$) that the mean agency score was higher in the FFS cohort (mean 19.3) than in the GPC (mean 18.2). Hence there was conclusive evidence ($P<0.0001$) that the overall Hope score was higher in the FFS cohort (mean 41.1) than in the GPC (mean 36.8). Fitting analysis of covariance models adjusting for age, gender and HIV status led to very similar conclusions.

In other words the observed differences between the mean scores in the two groups cannot be explained by differences in the age, gender composition or HIV status of the cohorts: there are definite differences between the two groups in their relative hope scores. The markedly higher hope scores (both agency and path and overall) among the FFS as compared with GPC is interesting and the reasons for the difference may be hypothesised as having to do with differences between a "frontier society" with a recent history of in-migration among the FFS population as contrasted with long established farming communities based on coffee and bananas in which a process akin (but not identical to) to "involution" had occurred in the sense that term was developed by Geertz (Chrétien, 2004; Geertz, 1963; J. Seeley, 2014). Thus, in the GPC communities, with the exception of education which offers a way out for some, life depends upon farming, sometimes using migrant labour, and petty trading, and for some, but not all of the households, this way of life appears to be "involutionary".

**Association between Hope and subscale scores and risky behaviour in the FFS community**

In the survey of the FFS cohort, a Risk Exposure Questionnaire (REQ) was used. This was administered to 26 (19 HIV negative and 7 HIV positive) of the 74 respondents included in the sample for our current study. The REQ investigated six "risky" behaviours over the preceding three month period. The "risky" behaviours were: alcohol consumption (dichotomised as weekly or more frequently *vs.* less than weekly), evidence of having experienced an STI (one or more of abnormal or smelly genital or urethral discharge, genital sores or ulcers or having been informed by a nurse or doctor that the respondent had an STI), whether the respondent reported more than one sexual partner in the past three months, whether the participant had engaged in risky sex (defined as having either more than one partner or at least one new partner in the previous three months and not reporting condom use always with all such partners), whether or not the respondent had sex under the influence of alcohol or drugs, and whether or not the participant had engaged in any transactional sex (defined as either having received money, gifts or help in exchange for sex or having given money, gifts or help in exchange for sex).

Table 4 shows the mean scores for the Hope scale and the two subscales by the levels of the six risky behaviour variables. The only comparison reaching statistical significance was that between risky behaviours and the Agency Score. Here the Agency subscale mean score was significantly higher among respondents who consumed alcohol less than weekly than for participants who consumed alcohol weekly or more frequently, and correspondingly the Hope Score was marginally significantly higher for those consuming alcohol less than weekly. However for a number of the risky behaviours

the scores were higher for those who did not exhibit the behaviour concerned e.g. the Path score and Hope score were higher among respondents who did not have more than one partner in the previous three months, and also for those who did not engage in risky sex (as defined above) as well as for those who did not engage in sex under the influence of alcohol or drugs. The fact that these results did not reach statistical significance could in part be due to the small sample sizes in these two studies.

**Ethnographic data**

Detailed qualitative structured interview material was collected from 23 of the people in the two GPC villages and from 30 people in the FFS village. These interviews were extensive, lasting from 30 minutes to two hours in some cases. The following observations have been derived from analysis of these data:

1. Children, particularly educated children, were viewed as an important source of security for the future. They would not only be able to better themselves but also support their parents. Hence children and agency were identified.
2. Narratives about investing in livelihoods as providing hope for the future were frequent.
3. There were some marked differences between the GPC and FFS respondents with regard to agency.
    a. The FFS respondents having engaged in a range of different money making jobs in the past (often involving migration) and seemingly more optimistic about their options for the future.
    b. In contrast, while respondents in the GPC were aware of opportunities outside the villages in which they lived and were often hopeful that relatives (particularly children) working in towns (and fishing sites) might be able to better the family income, they did not see other ways forward. Thus for them, hope was closely linked to the importance of family and friends as a source of agency.
    c. In both the GPC and FFS interviews, people who scored high on the Snyder scale often had a more optimistic take on life, chatting about their kids, their work and their prospects to a greater extent than did those who scored lower on the Snyder scale.

These findings are significant insofar as they lend further support to the way that hope and hopelessness as experienced by individuals and groups reflect their experience of the opportunities and constraints offered by the structures within which they live. This observation has been noted also by a recent study, also using the Snyder scale among youth in Tanzania (Nalkur, 2009).

**Conclusions**

We conclude as follows:

1. The Snyder scale does work in Uganda in the sense that it is understood and has meaning when used in a Luganda speaking population;
2. The relatively low Cα scores suggest that in another stage of this work we should investigate the reasons for this more closely in relation to qualitative interviews focused on perceptions and meanings of hope in these communities;
3. The qualitative data and quantitative data taken together suggest that the variable *hope* is in some way reflecting the perceptions and actions of people in the two communities as responses to their rather different structural situations;
4. The differences in their structural situations as reflected in their hope scores are in some way associated with risk factors for STI/HIV acquisition;

5. Although not discussed in this paper, additional analysis of the data revealed that removal of any one component from the Snyder scale, and even from either of its two components, Pathway and Agency separately, increases the separate and combined Cα scores markedly[iv]. Why and how this should happen will be a topic for further examination in a later phase of this study in Uganda and also in another study planned for Tanzania.

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**TABLES**

**Table 1: Mean Path, Agency and full Hope scores broken down by Socio-economic factors for the GPC respondents**

| Factor | Level (n) | Path Score | Agency Score | Hope Score |
|---|---|---|---|---|
| Overall | All (96) | 18.60 | 18.21 | 36.81 |
| Gender | Male (44) | 18.66 | 18.39 | 37.05 |
| | Female (52) | 18.56 | 18.06 | 36.62 |
| Age (grouped) | < 20 (12) | 20.25 | 17.67 | 37.92 |
| | 20-29 (17) | 17.82 | 17.53 | 35.35 |
| | 30-39 (21) | 19.71 | 18.05 | 37.76 |
| | 40-49 (11) | 17.0 | 17.64 | 34.64 |
| | 50-59 (17) | 17.65 | 18.76 | 36.41 |
| | 60 and older (18) | 18.83 | 19.22 | 38.06 |
| Education Level | None (10) | 17.1 | 19.3 | 36.4 |
| | Primary (62) | 18.94 | 17.95 | 36.89 |
| | Lower Secondary (S1 – S4) (10) | 18.4 | 18.7 | 37.1 |
| | Higher Secondary (S5 – S6) (7) | 16.57 | 18.0 | 34.57 |
| | Tertiary (7) | 20.14 | 18.43 | 38.57 |
| Marital Status | Ever Married (63) | 18.51 | 18.30 | 36.81 |
| | Never married (33) | 18.79 | 18.03 | 36.82 |
| HIV status | Positive (6) | 20.5 | 19.0 | 39.5 |
| | Negative (86) | 18.43 | 18.22 | 36.65 |
| | Not tested (4) | 19.5 | 16.75 | 36.25 |
| Quality of roof of house | Good (51) | 19.37 | 18.64 | 38.02 |
| | Fair (30) | 17.23 | 17.60 | 34.83 |
| | Poor (15) | 18.73 | 17.93 | 36.67 |
| Type of Wall of house | Not Brick (30) | 18.33 | 18.47 | 36.8 |
| | Brick (66) | 18.72 | 18.09 | 36.82 |
| Number of rooms in house | 2 to 3 | 18.94 | 17.65 | 36.58 |
| | 4 | 18.12 | 18.46 | 36.59 |
| | 5 or more | 19 | 18.5 | 37.5 |
| House owned by household members | Yes (87) | 18.89 | 18.33 | 37.22 |
| | No (9) | 15.89 | 17.0 | 32.89 |
| Own building for renting | Yes (11) | 19.73 | 18.82 | 38.55 |
| | No (85) | 18.46 | 18.13 | 36.59 |
| Land belong to household | Yes (89) | 18.71 | 18.27 | 36.98 |
| | No (7) | 17.29 | 17.43 | 34.71 |
| Land used for crop cultivation | Yes (86) | 18.66 | 18.06 | 36.72 |
| | No (10) | 18.1 | 19.5 | 37.6 |
| Quality of land | Fertile (11) | 18.91 | 18.27 | 37.18 |
| | Mixed (50) | 18.74 | 17.86 | 36.6 |
| | Infertile (25) | 18.4 | 18.36 | 36.76 |
| Household owns other land | Yes (48) | 19.06 | 18.85 | 37.92 |
| | No (48) | 18.15 | 17.56 | 35.71 |
| Does household employ others (permanent or temporary) | Yes (15) | 17.8 | 17.87 | 35.67 |
| | No (81) | 18.75 | 18.27 | 37.02 |

**Table 2: Results of fitting multiple regression models for factors associated with scales in GPC**

## (a) Path Score

| Factor | Level | Estimate | 95% confidence limits | P-value |
|---|---|---|---|---|
| Constant | | 16.95 | 14.28 ; 19.62 | |
| Education | None | -1.99 | -4.12 ; 0.14 | |
| | Primary | 0 | Reference Level | 0.096 |
| | Lower Secondary (S1 – S4) | -1.25 | -3.39 ; 0.89 | |
| | Higher Secondary (S5-S6) | -2.64 | -5.13 ; -0.14 | |
| | Tertiary / Further | 0.37 | -2.15 ; 2.90 | |
| Quality of Roof | Poor | 0 | Reference Level | 0.060 |
| | Fair | -0.85 | -0.89 ; 2.88 | |
| | Good | 0.99 | -2.87 ; 1.17 | |
| House Owned by Respondent | No | 0 | Reference Level | 0.074 |
| | Yes | 2.09 | -0.21 ; 4.38 | |

## (b) Agency Score

| Factor | Level | Estimate | 95% confidence limits | P-value |
|---|---|---|---|---|
| Constant | | 16.10 | 14.43 ; 17.77 | |
| Age | Per ten year increase | 0.35 | 0.008 ; 0.70 | 0.045 |
| Own other Land | No | 0 | Reference Level | 0.039 |
| | Yes | 1.29 | 0.064 ; 2.51 | |

## (c) Hope Score

| Factor | Level | Estimate | 95% confidence limits | P-value |
|---|---|---|---|---|
| Constant | | 32.30 | 29.01 ; 35.60 | |
| House Owned by Respondent | No | 0 | Reference Level | 0.023 |
| | Yes | 4.07 | 0.58 ; 7.56 | |
| Own Other Land | No | 0 | Reference Level | 0.018 |
| | Yes | 2.64 | 0.47 ; 4.81 | |
| Employ Workers | No | 0 | Reference Level | 0.037 |
| | Yes | -3.17 | -6.14 ; -0.20 | |

**Table 3: Mean Path, Agency and full Hope scores broken down by Age and gender for the FF respondents**

| Factor | Level (n) | Path Score | Agency Score | Hope Score |
|---|---|---|---|---|
| Overall | All (75) | 21.83 | 19.32 | 41.14 |
| Gender | Male (41) | 21.68 | 19.10 | 40.78 |
| | Female (34) | 22.0 | 19.59 | 41.59 |
| Age (grouped) | < 20 (2) | 22.0 | 20.0 | 42.0 |
| | 20-29 (21) | 21.33 | 18.62 | 39.95 |
| | 30-39 (21) | 21.95 | 19.48 | 41.43 |
| | 40-49 (20) | 22.1 | 19.6 | 41.7 |
| | 50-59 (8) | 21.38 | 19.25 | 40.62 |
| | 60 and older (3) | 23.67 | 21.0 | 44.67 |
| HIV status | Positive (8) | 22.12 | 20.25 | 42.38 |
| | Negative (26) | 21.85 | 19.88 | 41.73 |
| | Not tested (40) | 21.7 | 18.8 | 40.5 |

**Table 4: Mean Path, Agency and full Hope scores broken down by Risk Exposure factors**

| Factor | Level (n) | Path Score | Agency Score | Hope Score |
|---|---|---|---|---|
| Overall | All (26) | 22.31 | 19.54 | 41.85 |
| Drinking frequency (*) | Less than weekly | 22.33 | 20.39 | 42.72 |
| | Weekly or more | 22.25 | 17.62 | 39.88 |
| STI symptoms | No (12) | 22.17 | 19.09 | 41.25 |
| | Yes (14) | 22.43 | 19.93 | 42.36 |
| More than 1 partner in last 3 months | No (20) | 22.55 | 19.6 | 42.15 |
| | Yes (6) | 21.5 | 19.33 | 40.83 |
| Risky sex (partner without always using condom) | No (15) | 22.53 | 20.2 | 42.73 |
| | Yes (11) | 22.0 | 18.64 | 40.64 |
| Sex under influence of alcohol or drugs | No (15) | 22.60 | 19.93 | 42.53 |
| | Yes (11) | 21.91 | 19.0 | 40.91 |
| Any transactional sex (giving or receiving) | No (13) | 22.31 | 19.15 | 41.46 |
| | Yes (13) | 22.31 | 19.92 | 42.23 |

**ENDNOTES**

[i] The intention of this study was to examine prevalence, incidence, risk factors and trends of infection with the human immunodeficiency virus (HIV) in a rural African population (Nunn et al, 1994). More recently, research activity has broadened to include the epidemiology and genetics of other communicable and of non-communicable diseases (NCDs), including cancer, cardio-vascular disease and diabetes (Asiki et al, 2013).

[ii] Data are collected through an annual census and since 2012 a biennial questionnaire and serological survey. Details of sexual behaviour, medical, socio-demographic and geographic factors are recorded. Blood specimens are obtained at each annual survey. Serum is tested for HIV-1 and the remaining fraction is stored at -80 degrees in freezers in Entebbe. HIV prevalence has remained relatively stable in this population, with about 8% of participants infected.

[iii] Out of curiosity we compared the Ugandan scores with those obtained in South Africa. We do not believe that the Snyder scale was ever intended to make cross cultural comparisons nor should it be used in that way. In general the Ugandan hope scores were higher than were those in the South African study.

[iv] We are very grateful to Dr Shirley Huchcroft for her considerable assistance and skill in making this observation.