DEVELOPING A MEASURE OF HOPE FOR EXPLORING HIV-RELATED RISKS AMONG YOUNG SOUTH AFRICAN WOMEN IN A HIGH PREVALENCE SETTING

Laurie Ann Abler

A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Health Behavior.

Chapel Hill
2012

Approved by:
Suzanne Maman, PhD
Robert DeVellis, PhD
Vangie Foshee, PhD
Catherine MacPhail, PhD
Audrey Pettifor, PhD
ABSTRACT

LAURIE ANN ABLER: Developing a Measure of Hope for Exploring HIV-related Risks among Young South African Women in a High Prevalence Setting
(Under the direction of Suzanne Maman)

Introduction: Young women in South Africa are disproportionately affected by HIV. Recent research has focused on how structural factors, including adverse risk environments, increase HIV risk. Hope is a psychosocial strength that may help explain how adverse risk environments influence risk behaviors. The objective of this study is to create and validate a hope measure with young women in South Africa, and then use the measure to explore the relationship between hope, the risk environment and risk behaviors guided by the Hope and HIV Prevention framework.

Methods: Hope was studied using mixed-methods research. In-depth interviews with young women who were enrolled in- and dropped-out of school, their parents, and a secondary school teacher were conducted together with focus group discussions with young women to develop the hope scale. The scale was administered within a cross-sectional survey collected from 2135 young women, aged 13-20, enrolled in secondary school. Reliability and validity were evaluated using factor analysis and calculating correlations. Logistic regression was used to test associations between hope, the risk environment and risk behaviors, and whether hope mediates the relationship between the risk environment and risk behaviors.

Results: Scale items were developed to measure three domains of hope – anticipation of a positive future, personal motivation to achieve goals, and influence of others on hope. However,
factor analysis revealed only one dimension containing items from the three hypothesized domains. Correlations with related constructs showed preliminary support for the validity of the scale. Reliability was high (Cronbach’s $\alpha=0.95$).

A majority of young women reported high hope (88.6%). Hope was related to sexual debut, but not to condom use or early sexual debut. Young women in households with more consumption, no biological parent, older average household age, and fewer youth enrolled in school were more likely to report high hope. There was some evidence that hope mediated the relationship between the risk environment and sexual debut.

**Conclusion:** The study provides a promising measure of hope for young women in high prevalence settings. Leveraging hope through improvements to the risk environment should be encouraged to reduce young women’s risk for HIV in South Africa.
DEDICATION

To my mother, Donna Mae Abler, for instilling me with the means for hopefulness

(1943-2010)
ACKNOWLEDGEMENTS

My hope throughout the process of completing this dissertation was sustained by innumerable colleagues, friends, and family to whom I am immensely grateful. Without them, this dissertation would not have been possible. These words only begin to convey the degree of thanks I have for their support.

This dissertation emerged out of a half a year of field work in South Africa, where it is impossible to separate work relationships from friendships. My fondest memories of those months involve interactions with the Conditional Cash Transfer pilot and the Agincourt Health and Population Unit staff. I am indebted to the team of fieldworkers who directly helped me collect and manage data from participants during my field work in South Africa – to Nester Monareng and Plantain Gugu Sibuyu who worked as my interviewers and translators, in more ways than one, to Angel Kulani for putting Shangaan into English, and to Levy Ngobeni for navigating the Agincourt communities. I am thankful for the advice that Kathy Kahn and Mark Collinson provided on my study based on their long-term research experience working in Agincourt. Numerous other staff (who also became friends) associated with the Conditional Cash Transfer pilot study made my work easier – Sarah Kagan, Mpumi and Lulu, Christopher Manyamba and Samson Khoza for liaising with the Agincourt communities, Paul Mee, Ngoni and Doreen, and Rhian Twine. I give special thanks to Mandie Selin for bridging the personal friendship and professional relationship we developed in South Africa and bringing it back to the U.S. Others in South Africa provided their friendship and compassion, especially Leah Nchabaleng for offering me refuge in her home on my return to South Africa after my mother died, Mama Mbetse, and Nicole Angotti.
The feedback and involvement of my dissertation committee was essential to my success. I extend my deepest gratitude to my dissertation chair and advisor, Suzanne Maman, who has mentored me with patience and support for over eight years beginning with my MPH, through project coordination on a study in Tanzania on which she was involved, and culminating in this dissertation. I appreciate Suzanne’s indefatigable investment in the process of mentoring and building my capacity, of teaching by showing and telling as well as discussing, and of giving me the space to learn from my mistakes. I hope one day to be as talented, thoughtful, insightful, knowledgeable and giving as her.

I am also thankful for having a supportive committee who challenged me to think, clarify ideas and grow intellectually – to Audrey Pettifor for helping me develop the idea of studying hope and providing the means to conduct the research as part of her intervention work with young women in South Africa; to Vangie Foshee for sharing her wisdom regarding adolescents and fostering my writing skills to help me communicate more clearly; to Bob DeVellis for modeling a collaborative teaching relationship while sharing his scale development expertise; and to Catherine MacPhail for helping reveal the nuances of young women’s experiences in South Africa.

In addition to my committee members, other faculty at UNC provided support, guidance and mentorship for my professional development. In particular, I am grateful to the China R24 for modeling what healthy, collaborative, global health research groups should look like – Gail Henderson, Carol Golin, Sharon Weir, and Jane Brown.

I give my thanks to other doctoral students who helped pave my way, like those who have gone ahead of me to illuminate what is possible, especially Nina Yamanis, Elizabeth King, and Lisa Parker. My cohort members also were crucial for helping me navigate the personal and professional aspects of the dissertation journey, especially Andrea Heckert and Rebecca Ochter for always having open ears and thoughtful recommendations. Much of the work that went in to
writing this dissertation was motivated by my writing group who dispensed endless advice and accountability as I developed my dissertation path – Ali Groves, Malena Rousseau, and Mary Bratsch.

My family – especially my dad and step-mom – has long encouraged me to engage my curiosity and in doing so has somehow learned to accept my proclivity for spending extended amounts of time living outside of the U.S. I am thankful that they are always there for me and for continuing to support me regardless of the physical distance.

I offer a large debt of gratitude and love to Malena Rousseau, my partner, best friend, and confidant. Every day during the dissertation process she provided tangible and intangible support, offering a mix of humor and distraction when I needed a break and doling out sage advice and asking probing questions to improve the soundness of my research. Her assistance kept me on track in countless ways, and it will be my pleasure to use what she has taught me so that I can return the favor to her as she progresses with her dissertation.

Finally, I give my heartfelt thanks to the young women who participated in this study and others like them in South Africa, as well as the parents and the teacher who were involved. They entrusted me with their stories, their hardships, their hopes and their thoughts about the future. Feeling indebted to the generosity of these young women and sharing their findings served as my ultimate source of hope for this dissertation.
# TABLE OF CONTENTS

TABLE OF CONTENTS .................................................................................................................. ix
LIST OF TABLES .......................................................................................................................... xiii
LIST OF FIGURES ....................................................................................................................... xiv
LIST OF ABBREVIATIONS ............................................................................................................ xv

CHAPTER 1: INTRODUCTION ...................................................................................................... 1
  1.1 Problem statement .............................................................................................................. 1
  1.2 Study purpose .................................................................................................................. 4
  1.3 Study rationale ............................................................................................................... 4
  1.4 Study design and aims .................................................................................................... 6
  1.5 Significance ..................................................................................................................... 7
  1.6 Organization of the dissertation ..................................................................................... 8

CHAPTER 2: BACKGROUND ..................................................................................................... 9
  2.1 Chapter overview .......................................................................................................... 9
  2.2 Epidemiological profile of HIV ..................................................................................... 10
    2.2.1 HIV in Southern Africa .......................................................................................... 10
    2.2.2 Influence of South African history on HIV ............................................................ 10
    2.2.3 HIV in South Africa ............................................................................................... 12
  2.3 HIV risk factors for young women in South Africa ......................................................... 14
    2.3.1 Individual-level HIV behavioral risk factors in South Africa ................................. 14
    2.3.2 Individual risk behavior alone does not explain the HIV epidemic ....................... 19
2.3.3 Relational risk factors ................................................................. 20

2.4 Behavioral interventions prevent the spread of HIV ........................................ 30

2.4.1 Behavioral interventions for adolescents ................................................. 31

2.4.2 Behavior interventions are ineffective at the population level .................... 32

2.5 Structural HIV interventions need to be studied ............................................ 33

2.5.1 Cash transfers as structural interventions ........................................... 34

2.5.2 Overview of the conditional cash transfer intervention parent study ........... 34

CHAPTER 3: HOPE THEORY .................................................................. 36

3.1 Chapter overview ............................................................................ 36

3.2 Interdisciplinary development of hope theory ........................................... 36

3.3 Hope scale constructs/domains ............................................................... 41

3.3.1 Key components of the hope construct in the literature ......................... 46

3.3.2 Inadequacy of existing hope measures for young women in South Africa .... 47

3.4 Study definition of hope .................................................................. 48

3.4.1 Domain 1: Anticipation of a positive future .......................................... 50

3.4.2 Domain 2: Personal motivation to achieve goals ................................... 51

3.4.3 Domain 3: Influence of others on hope ............................................... 51

3.5 Linking hope to HIV ..................................................................... 51

3.5.1 Hope among PLWHA ................................................................. 52

3.5.2 Hope and health behaviors, including HIV-related risk behaviors .......... 53

3.5.3 Hope and the risk environment ......................................................... 54

3.5.4 Conceptual links between hope and HIV risk ..................................... 55

CHAPTER 4: STUDY AIDS, RESEARCH QUESTIONS, HYPOTHESES, AND CONCEPTUAL MODEL ......................................................... 58

4.1 Chapter overview ............................................................................ 58
LIST OF TABLES

Table 3.1  Measures of hope and related constructs……………………………43

Table 3.2  Overview of hope domains and related constructs in  
the hope theory and measurement literature…………………………50

Table 4.1  Construct validity of the new hope measure  
by hypothesizing the magnitude and direction of its  
relationship with other measures……………………………………60

Table 5.1  Direction and magnitude of hypothesized  
relationships between validation variables and hope…………….80

Table 5.2  Descriptive characteristics of the sample of 13-20  
year old young women in Agincourt, South Africa…………82

Table 5.3  Distribution of the hope items……………………………………83

Table 5.4  Factor loadings for hope – the final single factor  
solution………………………………………………………………87

Table 5.5  Construct validity assessment using Pearson’s  
correlation with the mean hope score……………………………88

Table 6.1  Characteristics of the South African young  
women and their households……………………………………107

Table 6.2  Associations between the household risk  
environment and low and high hope……………………………109

Table 6.3  Unadjusted and age-adjusted odds ratios for sexual  
risk behaviors regressed on hope……………………………111

Table 6.4  Multivariate association between household risk  
environment and sexual debut……………………………………113
LIST OF FIGURES

Figure 3.1  Conceptual model of the spheres and dimensions of hope……………39
Figure 3.2  Conceptual model of Snyder’s hope theory…………………………...41
Figure 3.3  The Hope and HIV Prevention framework…………………………57
Figure 4.1  Conceptual model for study Aim 3……………………………………64
Figure 5.1  Eigenvalues for the young women’s sample data and the
100 simulated datasets……………………………………………………………86
Figure 6.1  Analysis for the mediation by hope of the relationship
between number of youth in school and sexual debut…………………114
Figure 6.2  Analysis for the mediation by hope of the relationship
between average household age and sexual debut…………………115
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACASI</td>
<td>Audio Computer-assisted Self-interview</td>
</tr>
<tr>
<td>AHDSS</td>
<td>Agincourt Health and Demographic Surveillance Survey</td>
</tr>
<tr>
<td>AOR</td>
<td>Adjusted Odds Ratio</td>
</tr>
<tr>
<td>ART</td>
<td>Anti-retroviral Therapy</td>
</tr>
<tr>
<td>CASI</td>
<td>Computer-assisted Self-interview</td>
</tr>
<tr>
<td>CCT</td>
<td>Conditional Cash Transfer</td>
</tr>
<tr>
<td>CDI</td>
<td>Children’s Depression Inventory</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>FA</td>
<td>Future Anticipation (Hope scale domain)</td>
</tr>
<tr>
<td>GBV</td>
<td>Gender-based Violence</td>
</tr>
<tr>
<td>HAART</td>
<td>Highly Active Anti-retroviral Therapy</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HSV-2</td>
<td>Herpes Simplex Virus 2</td>
</tr>
<tr>
<td>IO</td>
<td>Influence of Others on Hope (Hope scale domain)</td>
</tr>
<tr>
<td>IRB</td>
<td>Internal Review Board</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>PLWHA</td>
<td>People Living with HIV/AIDS</td>
</tr>
<tr>
<td>PM</td>
<td>Personal Motivation to Achieve Goals (Hope scale domain)</td>
</tr>
<tr>
<td>RMCAS2</td>
<td>Revised Children’s Manifest Anxiety Scale (version 2)</td>
</tr>
<tr>
<td>SES</td>
<td>Socio-economic Status</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually-transmitted Infection</td>
</tr>
<tr>
<td>UNC</td>
<td>University of North Carolina</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
</tr>
</tbody>
</table>
CHAPTER 1: INTRODUCTION

1.1 Problem statement

South Africa has one of the largest HIV epidemics in the world. An estimated 5.6 million people in a country of approximately 50 million are infected with HIV (UNAIDS, 2012). The epidemic in South Africa is spread predominantly by heterosexual transmission, putting many of the sexually active population at risk for HIV. Young women in South Africa bear the majority of the burden of the HIV epidemic. For every young man ages 15-24 infected with HIV, there are more than three young women ages 15-24 who are infected (UNAIDS, 2010).

Many resources in South Africa have been dedicated to responding to the HIV epidemic and containing the high prevalence, as well as treating and caring for people already infected with HIV. Investments and research into new biological innovations to prevent HIV show promise – such as the identification of circumcision as a means of reducing men’s chance of infection by up to 60% in the South African context (Auvert et al., 2005) and the use of early anti-retroviral therapy (ART) for discordant couples (Cohen et al., 2011) – but the policy changes, effectiveness trials, and translational research necessary for their implementation slow down their scale-up. For South Africans already infected with HIV, government roll-out of anti-retroviral therapy has increased to approximately 80% coverage of those eligible for treatment (Johnson, 2012). These measures and other efforts have led to success in stabilizing the epidemic; HIV prevalence has maintained a plateau for the last five years at approximately 16% for adults ages 15-49 (UNAIDS, 2012). Nevertheless, aggregation of national data partially hides the high HIV incidence rates among urban and rural South African women (Abdool Karim, Kharsany, et al., 2010).
Even if there were an adequate biomedical intervention for HIV, like a vaccine, much of the bulk of containing the further spread of HIV relies on improving behavioral mechanisms to reduce the HIV risk. Research has identified numerous behaviors that increase HIV transmission risk for young women, including concurrent partners, unprotected sex, transactional sex, alcohol use, early age of sexual debut and gender-based violence in relationships. Together with other biological efforts, behavioral interventions for HIV – including peer education, health education, condom promotion, testing mobilization, and school-based activities – have been introduced to reduce risk behaviors and therefore decrease young women’s chances of HIV infection in South Africa. Although many of these behavioral interventions have been efficacious at reducing risk behaviors, they have not shown a concomitant reduction in HIV incidence.

As a result of the limited success of behavioral interventions, HIV prevention research has paid greater attention to structural approaches for supporting behavior change at the population level in order to decrease the prevalence of HIV. These efforts, known as structural interventions, aim to develop the environment, the systems, and the infrastructures needed to facilitate changes in risk behavior. Structural interventions “locate the source of public-health problems in factors in the social, economic and political environments that shape and constrain individual, community, and societal health outcomes” (Blankenship, Bray, & Merson, 2000). They include a multitude of efforts to reduce the spread of HIV, ranging from reducing poverty, increasing education access, promoting gender equality, strengthening health care systems and access, and addressing historically created racial disparities. As researchers identify the structural determinants of HIV, prevention is shifting from solely focusing on individual behavior change to altering the structural factors that contribute to higher HIV prevalence.

As new structural interventions are developed, research is needed to assess how any resulting changes to the environment affect HIV risk behaviors and the transmission of HIV. Even though structural interventions target social, economic, and contextual factors, such interventions
ultimately need to reduce risk behaviors at the individual level in order to impact the prevalence of HIV. Psychosocial factors are the individual-level cognitive and emotional psychological characteristics that are influenced by both social and behavioral factors (Martikainen, Bartley, & Lahelma, 2002). These psychosocial factors are potential intermediate outcomes of structural improvements to the environment, but little is known about this association in the context of an HIV epidemic. This study focuses on “risk environments” in settings with a high prevalence of HIV, which are the social, physical, financial, and political structures that increase the risk of HIV transmission (Rhodes & Simic, 2005). By studying how psychosocial strengths are impacted by the risk environment, we may be able to describe the mechanisms used by structural interventions to alter the risk environments that lead to behavior change. Hope is an example of a psychosocial factor that may be strengthened by improvements to the risk environment (Barnett, 2008b). The “Hope and HIV Prevention” framework has been developed to conceptualize hope as psychosocial strength that acts to bridge the effect of the risk environment on sexual risk behaviors (Bernays, Rhodes, & Barnett, 2007). As structural improvements are made, it is likely that the changes lead to increased access to opportunities, which further results in more hope for the future. Hope can help people modulate their behavior in ways that model how they envision their future.

The risk environment not only influences hope, but hope has also been shown in turn to affect health behaviors and outcomes. In relation to general and clinical health, hope has been researched predominantly with regards to coping with a disease diagnosis. In the last 50 years, conceptualizations of hope have been developed to understand hopeful responses to a diagnosis of a chronic or an acute disease, for example cancer (Crothers, Tomter, & Garske, 2005; Fehring, Miller, & Shaw, 1997) and mental illness (Bland & Darlington, 2002; Schrank, Hayward, Stanghellini, & Davidson, 2011). In relation to HIV, hope has been studied with regard to understanding how people living with HIV/AIDS (PLWA) deal with their diagnosis (Ezzy,
Although hope plays an important role in improving well-being and coping with a disease, little is known about how hope relates to sexual risk behaviors that promote the transmission of HIV.

Prior to understanding how changes to the risk environment may help improve hope, it is important to have a culturally appropriate means of measuring hope along with a better understanding of how the risk environment and sexual risk behaviors are related to hope. As a result of numerous hope studies in various contexts and disciplines, many hope measures exist. The majority of these measures have been developed in laboratory or clinical settings, which do not necessarily have transferability to community-based settings. Also, all of the known measures have been created in the United States or other resource-rich settings, while none have been created specifically for use in low-resource settings like South Africa. There is a need for scale development work to create a hope measure that is applicable for a high HIV-prevalence setting like South Africa.

1.2 Study purpose

The overall objective of this study was to create and validate a measure of hope for use with young women in South Africa. The specific purpose was to use mixed-methods research to explore what hope means for rural young women in South Africa and use that information, coupled with pre-existing hope theory, to develop and validate a hope scale. The scale was then used to test hope’s relationships with the risk environment at the household level and HIV-related sexual risk behaviors in young women participating in a structural intervention study in South Africa.

1.3 Study rationale

This dissertation study developed the hope scale prior to the launch of the parent intervention study, measured baseline hope among the young women participants in the intervention, and explored hope’s relationship with risk behaviors and environment at baseline. The Conditional
Cash Transfer (CCT) parent study is a randomized control trial that uses a 2x2 factorial design, to assess how altering two structural factors – the creation of educational opportunities for young women and equal gender norms for young men – in 24 rural communities in South Africa impacts young women’s HIV incidence. The first intervention activity is conditional cash transfers to young women ages 13-20, which are small payments made to young women and their families to reduce the financial barriers that otherwise may prevent young women from remaining enrolled in school, but are conditional on young women attending school on a regular basis. Half of the young women enrolled in the CCT study are assigned randomly into the intervention arm to receive the conditional cash transfer, while the other half of the young women are randomized into the comparison arm and will not receive a conditional cash transfer. Prior to launch of the CCT trial, a pilot trial of the conditional cash transfer intervention arm was conducted with 40 young women, ages 14-20, enrolled in ninth grade at one secondary school. The main purpose of the pilot activities was to determine the feasibility and acceptability of provision of the conditional cash transfers, and to pilot test the study data collection tools. In addition to the cash transfers, the second intervention activity of the CCT parent study provides community mobilization activities targeting young men ages 18-35 to improve gender equality and foster an environment where young women and men can successfully change their HIV risk behaviors. Community mobilization activities have been assigned randomly to occur with men in 12 of the 24 study communities. The main study outcome for the CCT intervention trial is biological – HIV incidence among the young women participants in the cash transfer arm of the study. The secondary aims of the CCT study are to understand the impact of the intervention on young women’s HIV-related sexual risk behaviors – such as unprotected sex, number of sex partners, partner age differences, age of first sex, and pregnancy.

This dissertation study used data from participants in the conditional cash transfer pilot and baseline data from the larger intervention study. Because the research only utilized CCT pilot and
baseline data, the hope scale could not be used to evaluate the effect of the conditional cash transfers on changes in hope. This exploratory research will help inform future research within CCT and potentially other structural interventions to test intervention effects on sexual risk behavior and HIV transmission via action on hope.

1.4 Study design and aims

To develop and test the hope scale, this study contained two phases of mixed-methods research. The first phase involved formative qualitative research conducted to develop an understanding of how young women conceptualize what hope means in their lives in order to inform the creation of a measure of hope. Because education may influence how young women talk about their hope and future, study participants for the formative research included young women who are currently enrolled in school and young women who were not currently enrolled in school nor have graduated from high school, as well as parents/caregivers and teachers who can talk about the young women’s experiences and hope. Along with a literature review of previous hope theory and scale development, the data collected from the first phase informed the development of the hope scale.

The second phase of the research used cross-sectional data from the baseline CCT survey collected prior to young women’s randomization into an intervention or control study arm. With a baseline sample of 2135 young women available, this study first used these data to finalize the factor structure and validate the hope scale and then explored the relationship of hope with the risk environmental and sexual risk behaviors.

To guide the two phases of data collection, this study was supported by three research aims:

- *Specific Aim 1 (Qualitative Phase 1)* – To conduct formative research to describe South African young women’s meanings of hope.
• **Specific Aim 2 (Quantitative Phase 2)** – To develop and validate a scale that reliably measures the construct of hope in a sample of young women in rural South Africa.

• **Specific Aim 3 (Quantitative Phase 2)** – To empirically test the relationship between South African young women’s risk environment and hope, between hope and sexual risk behaviors, and whether hope mediates the relationship between the risk environment and sexual risk behaviors.

1.5 **Significance**

The study findings fill a critical gap in understanding young women’s hope in South Africa. This study creates the first measure of hope developed specifically for use in South Africa and for understanding the HIV epidemic in a high prevalence setting. The hope scale is validated within a sample of young women in rural South Africa, a country which bears a disproportionate burden of the world’s HIV epidemic. Beyond the impact of developing and validating a hope scale, this work elucidates important elements of the risk environment and sexual risk behaviors which are associated with young women’s hope. The explorations of the hope construct conducted in this study with young women, and the testing of hope’s relationships with the household-level risk environment and sexual risk behavior provides new insights into how to improve hope as an individual-level psychological strength. Although this research cannot test hope as an outcome of the CCT structural intervention because the study was conducted at baseline, the findings provide evidence that hope may be a relevant factor to explore in order to explain how structural interventions outcome of such interventions that affects behavior change.

Finally, this study adds to the existing behavior change theory literature, applying hope theory to novel questions regarding the interplay of hope, the risk environment and sexual risk behavior. The results of the study have the potential to broaden our understanding of the mechanisms by which hope links conditions in the risk environment to HIV-related sexual risk
behaviors. The research may have further implications for considering hope as a determinant of other health behaviors that can be applied in other settings, with other health problems.

1.6 Organization of the dissertation

The dissertation is comprised of seven chapters. Chapter 1 addresses the problem statement and an overview of the study design and aims. Chapter 2 provides a review of the literature related to HIV risk for young women in South Africa. Chapter 3 details theories of the construct of hope and how hope relates to the risk environment and health behaviors. Chapter 4 describes the conceptual model for the dissertation study and the research questions and hypotheses that guided the research. Chapter 5 presents the results from Aims 1 and 2 in a manuscript entitled “Developing and validating a measure of hope among young women in a high HIV prevalence setting in rural South Africa”. Chapter 6 presents the results from Aim 3 in a manuscript entitled “Hope’s relationship with the household risk environment and sexual risk behaviors among young women in rural South Africa”. Chapter 7 discusses the key findings and their implications for future HIV prevention research and policy.
CHAPTER 2: BACKGROUND

2.1 Chapter overview

This chapter provides a broad overview of the HIV epidemic in South Africa with an emphasis on individual-level, relationship-level and environmental-level determinants of HIV risk for young women. Also, the chapter addresses HIV prevention efforts that intervene on young women’s HIV risk. The information provided in this chapter explores the environmental context in which young South African women live through a description of behaviors and other factors that relate to their HIV risk. Although numerous aspects of young women’s HIV risk are covered in this chapter which do not apply directly to constructs measured in the dissertation research, their inclusion helps to demonstrate that much of young women’s HIV risk in South Africa is influenced by factors outside of their immediate control in an adverse risk environment. The description of the HIV-related literature in this chapter provides a foundation for considering how hope may be used to understand the connection between risk environments and risk behaviors (see Chapter 3). The overview of young women’s risk in this chapter addresses: 1) the epidemiology of HIV in Southern and South Africa; 2) individual risk behaviors that increase young women’s likelihood of acquiring HIV; 3) relationship risks and environmental-level factors that increase the risk of HIV infection in young women; 4) behavioral and structural interventions to address the HIV epidemic in light of HIV-related sexual risk behaviors; and 5) an overview of the parent study – the Conditional Cash Transfer (CCT) HIV prevention trial conducted in rural South Africa.
2.2 Epidemiological profile of HIV

2.2.1 HIV in Southern Africa

HIV in Southern Africa is spread predominantly by heterosexual transmission (Wilson, Wright, Safrit, & Rudy, 2010). Currently, 71% of all new HIV infections worldwide occur in Sub-Saharan Africa (Jewkes, 2010) and the region accounts for 35% of the world’s population infected with HIV (UNAIDS, 2010). In 2007, there were 1.9 million new HIV cases in Sub-Saharan Africa, corresponding to two to three new infections for every person who initiated antiretroviral therapy (ART) to treat HIV that year (UNAIDS, 2010). While other regions in Africa have epidemics that have stabilized or decreased, this is not the case for all of Southern Africa. Drivers of the epidemic – such as labor migration, concurrent sexual partnerships, gender inequalities and limited access to male condoms – impede efforts to get the epidemic under control (Beyrer & Mayer, 2007).

Women in Southern Africa bear a majority of the burden of the HIV epidemic. Globally, 50% of HIV-infected women 15 years or older live in Southern Africa, which amounts to more than 60% of all the infections in Southern Africa (UNAIDS, 2008). Young women ages 15-24 in Southern Africa are approximately eight times as likely to have HIV than their male peers (UNAIDS, 2010). As women age, they experience a faster increase in HIV infection rate than young men, and women reach a peak in prevalence at a younger age than men (Gouws, Stanecki, Lyerla, & Ghys, 2008).

2.2.2 Influence of South African history on HIV

At the time when HIV was first identified in South Africa in 1982, the country was in the midst of some its most difficult and violent struggles against apartheid – the institutionalized social, political, cultural and economic segregation of South Africans based on racial classification. As the HIV epidemic rapidly exploded in the mid-1990s – increasing from 0.76%
in 1990 to about 10% in 1995 among antenatal clinic attendees (Abdool Karim & Abdool Karim, 2002) – the Republic of South Africa was emerging as a free democracy with the black majority population voting for the first time in the country’s history. Although many complex factors have played a role in creating one of the largest HIV epidemics in the world, the legacy of apartheid continues to frame the country’s HIV epidemic over fifteen years after the advent of political enfranchisement for all South Africans.

The public health response in the early years of the HIV epidemic was inadequate because the apartheid government was not concerned with prioritizing a problem affecting gay men and black people, the population most impacted by the political and social oppression (Abdool Karim & Abdool Karim, 2002; Marks, 2002). In addition, the apartheid policy of institutionalized segregation meant that black people in the country were systematically relegated to lesser jobs, education, land and housing options, health and social services, natural resources, and food security, which further exacerbated the inadequacy of the HIV response to stop the epidemic. One enduring example of how the apartheid system aided the spread of HIV was (and still is) migration (Lurie et al., 2003). Black families were separated by the apartheid economic system, in which only those who were employed were entitled access to urban economic centers and meager residences in the surrounding townships, while unemployed spouses (typically women) and children were left behind in the traditional homelands. This migratory system affected the community social cohesion that is protective for HIV (Marks, 2002) and supported migrant men having multiple partners between their two urban and rural homes (Abdool Karim & Abdool Karim, 2002).

Even today, remnants of the recent history of apartheid continue to support structural factors – such as migration, poverty, and gender inequalities (Cowan & Pettifor, 2009) – which promote the HIV epidemic in South Africa. The systems of labor and migration have not changed for a large portion of the South Africa population, and young people develop relationship patterns influenced by this inequality and disruption which promotes the spread of HIV (Gilbert &
Gender identity in South Africa, coupled with sexual norms and behavior, has undergone rapid changes as a result of the social and political shifts into and then out of the apartheid system which occurred in the last half a century (Hunter, 2005). The enduring elements of apartheid’s unequal social order continue to support gender inequality, masculine dominance, and gender-based violence, all linked to HIV infections in women (Jewkes & Morrell, 2010). In responding to the HIV epidemic in South Africa, a basic understanding of these historical issues is important to situate how the epidemic is manifest today.

2.2.3 HIV in South Africa

More people in South Africa live infected with HIV than in any other country in the world; there were approximately 5.6 million people living with HIV/AIDS (PLWHA) in 2008 in South Africa (UNAIDS, 2010). Since 2002, the HIV prevalence in South Africa has stabilized around 11% (Gouws et al., 2008; Katz & Low-Beer, 2008; Shisana, 2009), though in many other countries in the region, the HIV epidemic is declining (UNAIDS, 2004). South African men have fared better than women, seeing a significant decline in prevalence since 2000, which suggests that increases in women’s prevalence have occurred to keep the overall prevalence unchanged (International Group on Analysis of Trends in HIV Prevalence and Behaviors in Young People in Countries Most Affected by HIV, 2010). Young women in South Africa, like other countries in the region, see stark increases in their risk of HIV beginning at the age of 15, more rapidly than young men. Nearly one third of women ages 20-34 are infected with HIV, much higher than any other demographic (Shisana, 2009). Like the trends in prevalence for the overall population in the last decade, the prevalence in youth ages 15-24 has held steady at approximately 10% (Shisana, 2009), but this statistic hides the gender disparity between young men and young women. The HIV prevalence in young women ages 15-24 has decreased to 13.9% from a high of 16.7% and decreased to 3.6% from a high of 6.1% in young men (International Group on Analysis of Trends in HIV Prevalence and Behaviors in Young People in Countries Most Affected by HIV, 2010).
Besides gender, location in South Africa plays a role in determining the epidemic profile of the prevalence of HIV. Among those infected, the urban informal settlements have the highest prevalence (17.6%), followed by rural informal (11.6%), rural formal (9.9%) and urban formal settlements (9.1%) (Shisana, Rehle, Simbayi, & Mbelle, 2008). Historically, informal settlements did not have a government structure with resources that could guide the development of those communities, though such a government is now in place. Like urban informal areas, rural informal areas are densely populated, but differ in the continued dearth of essential community services, especially health care, and the long distances from urban economic centers. The lack of services and resources affect the informal communities’ ability to respond to HIV, thereby affecting the prevalence of HIV.

Although HIV prevalence data show evidence that the epidemic is stabilizing over time, prevalence still remains high, and incidence data serves as an indicator to highlight the populations which continue to drive the epidemic in South Africa. Because of different populations researched across a variety of studies — including urban residents, rural residents, sex workers, and the general population — calculations of HIV incidence is varied and ranges from 1.8-17 per 100 person year (Braunstein, van de Wijgert, & Nash, 2009). The South African National Prevalence Survey calculated national HIV incidence at 3.3/100 person years for youth ages 15-24 (Shisana et al., 2008). The evidence for gender disparities in the HIV epidemic is reinforced by the incidence data. In a study following a prospective cohort of people in a high prevalence setting (15%) in rural Kwa-Zulu Natal, incidence is high, estimated at 7.9/100 person years for women and 5.1/100 person years for men (Bärnighausen et al., 2008). Some evidence exists showing that incidence has been declining in young women ages 15-24, from 5.5/100 person years for 2002-2005 to 2.2/100 person years for 2005-2008 (Rehle et al., 2010). Other research suggests that incidence remains high for women at 6.5/100 person years in rural settings and 6.4/100 person years in urban settings (Abdool Karim, Kharsany, et al., 2010).
2.3 HIV risk factors for young women in South Africa

HIV in South Africa is predominantly spread through heterosexual intercourse, especially for young South African women. Numerous determinants at the individual, relationship, and environmental level have been identified and studied to show how young women are particularly at high risk for HIV in this setting. Each of these determinants demonstrate the increased risk of HIV transmission in high prevalence setting, but little is known about the potential for psychosocial strengths like hope to protect young South African women against these risks of HIV.

2.3.1 Individual-level HIV behavioral risk factors in South Africa

In addition to biological factors that predispose women to HIV risk (Abdool Karim, Sibeko, & Baxter, 2010), a number of behavioral sexual risk factors make young women susceptible to HIV infection. When considering which behavioral risk factors to target for HIV prevention, the most basic determinants focus on how HIV is predominantly spread through unprotected heterosexual sex. Consideration of gender-specific HIV risks adds nuance to our understanding of how young women learn and navigate their sexuality in a high prevalence HIV setting like South Africa. Along with unprotected sex, both age of sexual debut which lengthens the time in which one can contract HIV and multiple and/or concurrent partners influence a young women’s chances of being infected by HIV.

2.3.1.1 Age of sexual debut

For young women, delaying their first sexual experience is associated with decreased risk of HIV infection. The younger a woman is when she first has sex, the longer the duration of sexual activity and the more partners she is likely to have by the age of 24, leading to higher risk of HIV transmission (Mpofu, Flisher, Bility, Onya, & Lombard, 2006). Early sexual debut also is associated with coerced sex, unplanned pregnancy, risk of a sexually transmitted infection,
greater high risk behaviors in subsequent partnerships, and more partners over her lifetime (Mpolfu et al., 2006; Wellings et al., 2006).

In Southern Africa, approximately 16% of girls had experienced sexual debut prior to the age of 15 (Peltzer, 2010). In a nationally representative sample of South African youth ages 15-24, 8% of young women reported that their first sexual encounter occurred before they reached the age of 15 (Pettifor, O’Brien, MacPhail, Miller, & Rees, 2009). Although young women are less likely than young men to initiate sex before the age of 15, likely due to social norms, the HIV risk ramifications for young women who start having sex at an earlier age are greater than they are for young men. Reports of nearly half (46%) of young women show that their first sexual experience was coerced (Maharaj & Munthree, 2007), though more conservative estimates range from 10-20% (Dunkle et al., 2004). Young women are more likely to report that they were forced to have sex at sexual debut than young men (Pettifor et al., 2009), and young women who start having sex at a young age are more likely to have been coerced or violated during their first sexual experience compared to young women who delay first sex (Moore, Awusabo-Asare, Madise, John-Langba, & Kumi-Kyereme, 2007). The greater the age of a young woman’s male partner at first sex, the greater her chance of reporting sexual debut before the age of 15 (Pettifor et al., 2009). An earlier age of sexual debut is associated with non-condom use at first sex (Maharaj & Munthree, 2007), especially if the sex was forced (Pettifor et al., 2009). The consequences of not using a condom during first sex extend into future sexual experiences; young women who used a condom at sexual debut are three times more likely to report using a condom at their most recent sexual intercourse compared to young women who did not use a condom at first sex (Hendriksen, Pettifor, Lee, Coates, & Rees, 2007).

2.3.1.2 Multiple, concurrent partners

The nature of how young women form and maintain relationships plays a role in their HIV risk. Concurrency, or having multiple sexual partnerships that overlap in time, can drive the HIV
epidemic in high prevalence settings like South Africa. About a quarter (24.7%) of South African young men and 4.7% of young women ages 15-24 report having multiple, concurrent partnerships (Steffenson, Pettifor, Seage III, Rees, & Cleary, 2011). The larger the sexual network, the greater the chance to pass HIV among that network of partners. The spread of new cases of HIV is aided by concurrency; when new, acute infections enter the sexual network, they are especially contagious and easily spread to the entire network (Pinkerton, 2008). Concurrency in Southern Africa, where the HIV epidemic is the largest, is higher than other parts of the world and has been partially attributed to labor migration systems in the region (Mah & Halperin, 2010).

Women in South Africa are two times less likely to report concurrent partners than men (Harrison, Cleland, & Frohlich, 2008), but among those young women with more partners and concurrent sexual partners, they have been shown to be at higher risk for HIV than their peers with fewer partners (Pettifor et al., 2005). Men’s concurrent partnerships are not significantly associated with HIV, whereas women in concurrent relationships are at significantly more risk of HIV (Steffenson et al., 2011).

Concurrency also can signify multiple partners over the course of a lifetime. Although young women who report one lifetime sexual partner are at significant risk for HIV (Pettifor, Hudgens, Levandowski, Rees, & Cohen, 2007; Pettifor et al., 2005), the greater the number of partners women report, the greater likelihood that they have been infected with HIV (Pettifor et al., 2005). Based on nationally representative data in South Africa, young women ages 15-24 have an average of 2.3 partners (Pettifor et al., 2007).

2.3.1.3 Condom use

Condoms used correctly are one of the only effective means of preventing the transmission of HIV. Campaigns throughout Southern Africa have promoted the use of condoms to decrease people’s risk of HIV and other sexually transmitted diseases, and consequently, knowledge that condoms can prevent STIs is high at greater than 75% (James, Reddy, Taylor, & Jinabhai, 2004).
In fact, condom use is higher at last sex in high prevalence settings like South Africa compared to low prevalence settings, likely due to increased risk perceptions among people living in high prevalence settings priming them to use condoms (Chapman et al., 2010). But with only about half of youth ages 15-24 reporting condom use at last sex (Hendriksen et al., 2007; Pettifor et al., 2005) and fewer reporting consistent condom use (Pettifor, van der Straten, Dunbar, Shiboski, & Padian, 2004), condom use in South Africa can be improved. Although rates of condom use have increased in the last decade, they have not reached levels high or consistent enough to slow the HIV epidemic in the country. Research has identified a number of the reasons why people, especially young women, use condoms, but significant barriers to protected sex remain. Condom use is not solely a matter of individual choice. Whether or not youth use condoms is compounded by three levels which are influenced by the risk environment: 1) individual beliefs and attitudes concerning condom use, 2) interpersonal negotiation of condom use within the sexual partner dyad, and 3) availability and accessibility of condoms to use.

For young women, there are many personal barriers to using condoms. They may worry that condoms can get stuck inside their vaginas, and for those who have tried condoms, they may be dismayed by the rashes that condoms can cause (Stadler & Saethre, 2010). Condoms can conflict with young women’s desires to get pregnant and thus show fertility, so some avoid condoms due to their contraceptive properties (Varga, 1997; Wood & Jewkes, 2006). Further, young women fear community and partner perceptions that carrying condoms is evidence of sleeping around; women avoid being found with condoms for fear that they will be labeled and gossiped about as promiscuous (MacPhail & Campbell, 2001). Young women may internalize beliefs and attitudes from peers that condoms are used only by people who are already infected with HIV or an STI, who are themselves untrustworthy, or that they are only used by sex workers (MacPhail & Campbell, 2001; MacPhail et al., 2009).
In addition to personal reasons for not wanting to use condoms, young women also need to negotiate significant barriers to condom use with their male sexual partners. Within sexual partnerships, women who do want to use condoms compete against common South African masculine norms promoting flesh-to-flesh sex (Campbell, 2000; Selikow, Ahmed, Flisher, Mathews, & Mukoma, 2009). Asking for a condom use during sex can be equated to disclosing an HIV positive status to a partner or insinuating that the partner is HIV positive and/or promiscuous (Selikow et al., 2009). Young women may fear their partners will retaliate with violence for broaching the topic of condom use and expressing the desire for protection (MacPhail & Campbell, 2001). Trust and love in the relationship are demonstrated by forgoing a condom; condoms are perceived as only for the beginning of relationships and once the couple has been together for a while they can demonstrate their love and trust for each other by stopping condom use (Wood & Jewkes, 2006). Similarly, condoms are considered more appropriate for casual relationships (MacPhail & Campbell, 2001). The more intimate or the more time that partners have been together, the less likely they are to use condoms; long-term partners are trusted to be faithful so condoms are only appropriate for quick hook-ups and one night stands (Stadler & Saethre, 2010). Once condom use ceases in a relationship, it is difficult to restart using condoms for fear of being seen as unfaithful (Saethre & Stadler, 2009). Young women may lack the power to negotiate condom use, and women’s limited negotiating power is weaker if there is a larger age differential with an older male partner or if something is being transacted in exchange for sex (Hendriksen et al., 2007; Wojcicki & Malala, 2001). Young women in relationships characterized by greater gender equality are more likely to use condoms consistently with their partners than young women in unequal relationships (Jama Shai, Jewkes, Levin, Dunkle, & Nduna, 2010). In relationships with older men, young women often transact something in exchange for sex so they may feel even less empowered to insist on protection.
Finally, having unimpeded access to condoms remains a significant barrier to promoting and utilizing condoms. Evidence points to a large gap in the number of condoms available for distribution in Sub-Saharan Africa. Monies allocated to condom distribution in the region amounts to 3 condoms available per man per year, leading to an estimated 1.9 billion condom shortfall (Beyrer & Mayer, 2007). Although access to condoms has improved over time in South Africa, other access issues serve as a barrier to condom use. Often, condoms are available for free at the local clinics but it can be difficult for young women who are not married to acquire condoms due to perceptions of clinic staff that distributing condoms condones non-marital sex (Wood & Jewkes, 2006). Parents and other adults in young women’s lives may believe that it is immoral to allow adolescents access to condoms because they are thought to promote sexual activity (Caldwell, 2000). Condoms are available for purchase in local shops for a small price, but young women may not invest their scarce financial resources for something that they dislike. Condoms are not available when, where and in ways that young women can easily find them, adding to the complexity of trying to consistently use them with partners.

2.3.2 Individual risk behavior alone does not explain the HIV epidemic

As a population, South Africans do not engage in significantly more risk behaviors than people in other countries in the region. In fact, South Africans, including women, typically exhibit less risk behaviors than people in other lower prevalence settings (Chapman et al., 2010; Pettifor, MacPhail, Rees, & Cohen, 2008; Pettifor et al., 2011). Individual risk behaviors – such as condom use, number of partners, and age at sexual debut – are associated with a young woman’s risk of infection, but the prevalence of the reported behaviors does not correlate to the prevalence of HIV at the population level (Chapman et al., 2010). Further, men in South Africa on average engage in more risk behaviors than women, such as having more partners and demonstrating less condom use with long-term and casual partners, yet despite the greater risks that young men report, young women have two to three times the chance of HIV infection
compared to young men by the age of 21 (Pettifor et al., 2005). Young women with the same sexual behavioral risk profiles as men in the region are 70% more likely to have an HIV infection (Magadi, 2011). Although biological factors which make young women more susceptible to HIV infection likely account for some of the differences, other social factors in the risk environment also influence how young women form sexual partnerships that make sexual activity a risky endeavor (MacPhail, Williams, & Campbell, 2002). A primary focus on individual behavior as the drivers of the HIV epidemic assumes that people are empowered to choose rationally the behaviors that protect against the transmission of HIV. However, the data suggest that the gender and the regional disparity in HIV prevalence cannot be explained by either the individual-level risk behaviors or population-level prevalence of risk behaviors. A psychosocial strength, such as hope, which mediates the effects of the high prevalence risk environment on individual young women’s risk of HIV (Poundstone, Strathdee, & Celentano, 2004) has the potential to help explain these prevalence disparities. This suggests that further research is needed to explore what other factors – both at the environmental and individual psychosocial level– combine with individual-level risk behaviors to impact a population’s HIV prevalence.

2.3.3 Relational risk factors

Relational risk factors characterize the nature of the young women’s relationships with their male partners that increase HIV risk, and include age mixing, transactional sex, and relationship violence.

There are many reasons for the gendered nature of the HIV epidemic in which women, and especially young women, carry the majority of the burden of HIV infection in the region. Characteristics of relationships in South Africa make young women susceptible to HIV risk within partnerships and are grounded in the socio-historical context of the country. Gender inequality, particularly “differences in social value, power, opportunities, and behavioral expectations of men and women” (Jewkes, 2010), helps to drive the HIV epidemic.
2.3.3.1 Age-mixing

In South Africa, it is common for young women to partner with men who are older than them. Pettifor and colleagues (Pettifor et al., 2005) found that young women ages 15-24, on average, partner with men who are four years older. Between 27-50% of young women in South Africa have partners who are at least six years older, and 12-25% have partners who are more than ten years older (Silberschmidt & Rasch, 2001). The age disparity between younger women with older men is called age-mixing or age symmetry. Although there is no standard measure of what warrants an older male partner, typically the cut-point is set at a five or more years age difference. That the HIV prevalence profile of 15-19 year old young women mirrors men ages 20-24 is attributed to age mixing, and is one of the main reasons why young women are thought to be at higher risk of HIV than their male age peers (Luke, 2003). In South Africa, young women with older partners are significantly more likely than young women same-age partners to be at risk for HIV infection, and age differences of as little as a year can increase the likelihood of HIV (Pettifor et al., 2005).

The reasons that young women pick older partners are varied, such as men’s ability to provide gifts and money to the young women, for their social and educational maturity, for the belief that they are better sexual partners, for their material advancement that younger men have not yet attained, and they may be perceived as more marriageable (Harrison et al., 2008; Leclerc-Madlala, 2008; Luke, 2003). Young women do not always have a choice when it comes to partner selection; men have been shown to desire young partners because of the perception that they are less likely to have HIV, an STI, or other male partners with whom to contend (Longfield, Glick, Waithaka, & Berman, 2004).

There are numerous HIV risks involved in young women partnering with older men. Many of these older men are married or in relationships with other women (Silberschmidt & Rasch, 2001). Older men are more likely to have HIV than same-aged male peers given the epidemic profile of
HIV by gender and age (Luke, 2003). The age differential in relationships compounds already prevalent gender inequities for women. Age mixing in relationships may heighten gendered power inequalities, in turn making it more difficult for young women to negotiate safe sexual behavior. Young women’s sexual inexperience and vulnerability make it harder to communicate with their male partners (Luke, 2003), they may accept or withstand more coercion and violence than would otherwise be acceptable in a relationship (Wood, Maforah, & Jewkes, 1998), they may be less able to hold their male partners accountable regarding wives or other sexual partners (Silberschmidt & Rasch, 2001), they are more likely to start having sex earlier (Pettifor et al., 2009), and it is more likely that these relationships are characterized by financial or material transaction (MacPhail et al., 2002).

The disparities caused by age-mixing may be partially responsible for the impact of HIV on young women. In high HIV prevalence settings like South Africa, a larger differential in ages between young women and older men sexual partners is one of the only behavioral differences found in South African young women compared to young women in low prevalence settings like Tanzania and Uganda (Chapman et al., 2010). In a comparison of HIV risk behaviors between youth in South Africa and in the United States, the only significant difference was that sexually active South African young women were more likely to have older partners (on average, a 4 year difference) than young women in the United States (on average, a 2.6 year difference) (Pettifor et al., 2011).

2.3.3.2 Transactional sex

Transactional sex occurs when money or gifts are exchanged within a sexual relationship. It has been highlighted as a driver of the HIV epidemic, providing justification for why young women at the receiving end of the transaction are at greater HIV risk than men. Young women who report having sex for money or gifts are more likely to have acquired HIV than those who do not engage in transactional sex (Dunkle et al., 2004). Transactional sex is seen as risky for many
reasons; women’s sexual relationships that involve transactions are less likely to involve condoms, are more likely to be with older men or more casual partners, and have a more unequal gender power imbalance so that young women are not able to assert themselves in the relationship (Kaufman, Clark, Manzini, & May, 2004; Townsend et al., 2010). Some degree of transaction in a relationship may be the norm in Southern Africa and is often expected as a means for men to show love and respect for their female partners (Shelton, 2009). Studies have found that a broad range of young women engaging in transactional sex in various urban and rural locations throughout the region, ranging from 8-78% depending on the study (Dunkle et al., 2007).

Transactional sex is often framed as survival sex; that women need the resources garnered in the relationship to meet their basic living requirements, which would amount to money or gifts such as soap and basic food. While young women’s need for basic necessities facilitates some of the transactional relationships, other transactions involve consumable goods that young women desire for prestige or social status within their peer group and for making their lives easier: gifts like cell phones and clothes that are a luxury item in this setting (Townsend et al., 2010). Focusing on transactional sex as survival sex portrays women as unwilling, passive victims in the relationships involving transactions. Research highlights the complexity of motivations for young women’s active role in engaging in the transactional nature of the relationships (Leclerc-Madlala, 2003). Young women may need or desire the resource benefits of being in a transactional relationship. Often times, the transaction is seen as men providing proof of love for their female partners, and in some situations, young women have stated that they would not desire a partner who refrains from providing something material in return for the partnership (Bhana & Pattman, 2011). Socio-economic status indicators are not correlated with young women’s reports of engaging in transactional sex with their partners (Moore, Biddlecom, & Zulu, 2007), suggesting
that it is not only the poorest young women who report having transacted sex in exchange for a money or a gift.

2.3.3.3 Gender-based violence (GBV)

South African women are at high risk for experiencing sexual and physical violence. In urban areas like Cape Town, it has been reported that 40% of women had been assaulted (Kalichman et al., 2005) and 55% of women visiting an antenatal clinic in Soweto had been physically or sexually assaulted by a sexual partner (Dunkle et al., 2004). Men also admit to high rates of perpetration with approximately 20-42% of men reporting being physically violent toward their sexual partners in Cape Town (Abrahams, Jewkes, Hoffman, & Laubscher, 2004; Kalichman et al., 2005). The rates at which interpersonal violence are reported suggest that it is common, with 20-55% of women reporting experiences (Jewkes, Dunkle, Nduna, & Shai, 2010). The nature of violence that affects women’s HIV risk in South Africa are often more subtle and chronic than obvious cases of violent rape and sexual abuse. These less overt forms of intimate partner violence – including forced sex, physical abuse, and emotional abuse – occurring within relationships are characteristics of women’s inequality which fuel the HIV epidemic.

The link between HIV and violence in relationships is clear. Women who report having been a victim of emotional, physical or sexual violence by their partner have greater risk of being infected with HIV than women who have not been subjected to such violence (Dunkle et al., 2004; Maman et al., 2002). In a cohort study, young women who reported more relationship inequality and intimate partner violence during the course of two years of follow-up, were more likely to acquire HIV (Jewkes et al., 2010). Age-mixing and transactional sex further exacerbates the risk of intimate partner violence in the relationship, thereby heightening the risk for HIV (Dunkle et al., 2004). Perpetration of physical violence is associated with HIV in South Africa too; men who report physical abusing their female partners are more likely to have HIV (Jewkes,
Sikweyiya, Morrell, & Dunkle, 2009). It is estimated that one out of seven HIV infections could have been prevented if GBV was not a factor (Jewkes, 2010).

Unequal gender norms throughout much of the region position women lower than men and hinder women’s ability to control behaviors in their relationships that put them at risk for HIV (Jewkes, 2010). Not only do women have fewer employment and economic opportunities, they also have social norms that work against their pursuit of such opportunities which likely act to stifle their hope. The impact of GBV is heightened by the relative economic disparities for women in South African society compared to men, which makes women more reliant on their male partners to provide their basic needs. Because women show significantly lower levels of education and employment than men in South Africa, they have little recourse to hold their male partners accountable to a higher standard of behavior. As a result of women’s lower status, escaping or avoiding violence within a relationship is difficult (Jewkes & Morrell, 2010).

Within the scope of sexual partnerships, reports show that young women are apt to believe that violence within the relationship is acceptable, in fact desirable. One perception is that the more the man loves her, the more likely he is to beat her, expressing love through violence (Wood, Lambert, & Jewkes, 2007). Younger women may be at a distinct disadvantage because they are less likely to be empowered to speak up against the violence, may think it is normal, and be more likely to put up with it (Wood et al., 1998).

2.3.4 HIV risk associated with a risk environment

None of the individual and relationship factors described are unique to young women in South Africa nor are they sufficient to explain the extent of South Africa’s HIV epidemic. Different facets of the risk environment have been associated with sexual risk behaviors in South Africa – such as living in a high prevalence setting, education, socio-economic status, and household risk environments. The magnitude of the effect of the risk environments on young women’s HIV risk has the potential to be mitigated by increased hope.
2.3.4.1 Living in a high prevalence setting

Although many factors have contributed to the number of current infections in South Africa, one characteristic of the epidemic helps to continue its intensity and hinders efforts to decrease the prevalence. Living in a high prevalence setting is risky, allowing even the slightest risk behavior the potential opportunity to spread HIV, and therefore the consequences of any relaxed vigilance of protective sexual behaviors are greater (Pettifor et al., 2009). For example, in a study comparing risk behaviors among youth in the United States and South Africa, American youth reported earlier ages of sexual debut and less condom use than their South African counterparts, yet the HIV prevalence in this population is less than 1% in the US and greater than 10% in South Africa (Pettifor et al., 2011).

While individual and relationship risk behaviors help spread HIV and fuel the continued epidemic, for the most part South Africans have not been shown to have more risky behaviors than other settings with lower HIV prevalence (Chapman et al., 2010). South Africans have inherent risk due to the fact that they live in a high prevalence setting. Incidence of HIV is bound to prevalence, so that when prevalence is high, HIV infections continue to spread (Braunstein et al., 2009).

2.3.4.2 Education

Lack of education is a notable predictor of HIV risk in young women, likely due to education’s assistance in improving uptake of protective behaviors (Hargreaves, Bonell, et al., 2008; Hargreaves, Morison, et al., 2008). Research throughout Southern Africa as the HIV epidemic has matured overtime – including Malawi (Crampin et al., 2003), Uganda (Walque, Nakiyingi Miiro, Busingye, & Whitworth, 2005), Zambia (Michelo, Sandoy, Dzekedzeke, Siziya, & Fylkesnes, 2006), and Tanzania (Kwesigabo et al., 1998) – has shown that the regional declines seen in HIV prevalence benefited those who were educated the most.
As an individual-level factor, a young woman’s level of education is also associated with less risk of HIV infection; Pettifor and colleagues (2008) found that among young women who reported only one sexual partner in their lifetime, those who had finished secondary school were four times less likely to be HIV negative compared to those who had not graduated. In a cohort of youth ages 15-35 in rural South Africa, over three years of study follow-up, young women without a primary school education or less were the ones who most rapidly acquired HIV (Hargreaves et al., 2007). As the epidemic has matured among a national sample of pregnant women ages 15-24 in South Africa attending public antenatal clinics, those with a secondary education did not have increased risk of HIV from 2001-2005, while those with only primary education experienced an 8% increase in HIV risk every year (Johnson, Dorrington, Bradshaw, Plessis, & Makubalo, 2009).

Not only is education associated with reductions in HIV transmission, it also is related to decreases in risk behaviors in South Africa and elsewhere. Among rural young women in South Africa, those with higher education were more likely to have used a condom with a non-spousal partner (Hargreaves et al., 2007). UNAIDS (UNAIDS 2000) has reported that educated young women were more likely to delay sexual debut and to use condoms. Education for young women helps them delay marriage and pregnancy, bare fewer and healthier children, and develop opportunities for greater lifetime financial earnings (Bundy & Gotur, 2002). Young women in school are about 2.5 times less likely to report a male partner who is five or more years older (Harrison et al., 2008).

The suggested mechanisms by which school mitigates risk behaviors and likelihood of HIV infection are many. Uneducated women are likely to have fewer future opportunities for work and employment, so they may be more reliant on a male partner (Kim, Pronyk, Barnett, & Watts, 2008). They may have more free time if not enrolled in school, giving them more availability to find and meet new partners, especially older partners (Kaufman et al., 2004). HIV prevention is
embedded in the school curriculum in South Africa, so young women who are not in school may miss out on important health messaging provided in the classroom (Jukes, Simmons, & Bundy, 2008). Also, educated young women may be better equipped to utilize HIV prevention messages to change their behavior (Jukes et al., 2008).

The beneficial effect of getting an education on HIV risk extends beyond the educated individual. In Zambia, young women living in communities which had greater percentages of educated women were more likely to have lower HIV prevalence than those in communities with lower percentages of educated women (Kayeyi, Sandøy, & Fylkesnes, 2009).

2.3.4.3 Socio-economic status

In general, poverty levels often are associated with a variety of poorer health outcomes. The specific relationship between poverty and HIV is more complicated, with conflicting findings depending on when the research was conducted and which population was studied. At the national level, some of the richest countries in Southern Africa have the highest prevalence rates and rich urban areas within those countries also tend to have more concentrated HIV infections (Fox, 2010). During the early stages of the epidemic in Southern Africa, more evidence pointed to an increased risk of HIV for people with greater SES (Gillespie, Kadiyala, & Greener, 2007) which was attributed to richer people having more money to build sexual networks and more access to resources that attract and maintain sexual partner(s) (Bärnighausen, Hosegood, Timaeus, & Newell, 2007). Evidence from more recent studies on this topic is now coalescing around the theory that as the epidemic matures, the effect of poverty on HIV risk is not a simple, direct relationship (Gillespie et al., 2007; Mishra et al., 2007; Wojcicki, 2005). Further consideration of the role that other variables play to influence this relationship is necessary to understand the mechanism by which poverty affects HIV risk. For example, hope may be important as a mediator of how poverty affects the risk of HIV (Barnett & Weston, 2008). The absolute value of SES may not be a consistent determinant of increased HIV risk, but
disproportionate income inequality is associated with higher HIV prevalence (Fox, 2010); settings characterized by income disparities likely have patterns of sexual networking between the rich and the poor that facilitate HIV transmission (Auerbach, Parkhurst, & Cáceres, 2011). Increasing SES to reduce the risk of HIV transmission is likely to have the most benefit in countries with greater income inequality, like in South Africa (Wojcicki, 2005).

Despite the conflicting evidence, individual studies of young women in Southern Africa have shown a link between poverty and HIV risk (Hallman, 2008). Impoverished young women in South Africa were more likely to have an earlier sexual debut and not use a condom at last sex compared to wealthier young women, associations that were not found among poorer young men in the same study (Hallman, 2005). Increases to the income of Zimbabwean women were related to reports of fewer partners and less transactional sex (Lopman et al., 2007). Young women, but not young men, in impoverished families in South Africa not only were more likely to demonstrate HIV-related risk behaviors, they also reported more negative psychosocial factors like depression (Brook, Morojele, Zhang, & Brook, 2006).

2.3.4.4 Household demographic factors

There is not a comprehensive framework for how characteristics of the households in South Africa directly affect young women’s risk behavior, but household demographic factors have been conceptualized as a determinant of both psychosocial factors and HIV risk behaviors (Hallman, 2005). Numerous factors combine to make up the household-level risk environment that has the potential to affect young South African’s HIV-related risk behaviors. Parent relationships within South Africa and elsewhere play an important role in protecting children from health risks. Although a non-HIV related health outcome, parental living arrangements compromised children’s nutrition in a study conducted in Agincourt, South Africa (Madhavan & Schatz, 2007); both the absence of the mother and the lack of financial support from the father were associated with poor nutrition. Young women who did not live with their biological father
were more likely to be pregnant (Jewkes, Vundule, Maforah, & Jordaan, 2001). Young people who had healthy relationships with their parents in South Africa were also less likely to report negative psychosocial traits like depression (Brook et al., 2006).

Youths’ relationships with their parents are not the only important characteristics of the household that have the potential to influence HIV-related sexual risk behaviors. The mean number of people living in a household is associated with young women’s risk of pregnancy, an indication that they are sexually active (Jewkes et al., 2001). More traditional family structures influence young women’s notions of fertility and having children, so living with more extended family and members with less education likely decrease young women’s uptake of contraception and encourage young women to have sex to become pregnant (Hogan, Berhanu, & Hailemariam, 1999). Food insecurity stresses households and in neighboring Botswana and Zimbabwe, any instance of food insecurity in the last year was associated with women’s non-condom use with a non-primary partner, transactional sex, age mixing, and lack of control in sexual relationships (Weiser et al., 2007).

2.4 Behavioral interventions prevent the spread of HIV

Given the impact of the HIV epidemic on South Africans and the numerous sexual risk behaviors that have been shown to be associated with HIV infection, public health efforts have focused on how best to reduce the risk of HIV transmission. Although a range of biological interventions are being explored– including microbicides, ART roll-out, pre- and post-exposure prophylaxis, and circumcision – behavioral interventions are poised at the forefront of HIV prevention even once a successful vaccine is developed. Behavioral interventions target how individuals act in ways that put them at risk for HIV infection, so some of the current attention to preventing HIV is focused on developing behavior strategies that stop the spread of HIV.
2.4.1 Behavioral interventions for adolescents

The majority of the HIV intervention literature focuses on adults, as intervening on adolescents’ HIV risk requires extra care and thought to implement, consideration of ethical issues due to the age of the participants, attention to social and structural factors in addition to individual risks, deliberation of the setting in which to deliver the intervention, and understanding of the development of young people (Harrison, Newell, Imrie, & Hoddinott, 2010). Nevertheless, adolescence is a crucial intervention period because of youths’ high rates of HIV infection occurring during a developmental stage when they begin to explore sexual behaviors. Targeting young people in interventions, especially young women, is important because of the high chance of infection by the time that young women reach the age of 21 (Harrison et al., 2010), yet few interventions with young people have been evaluated (Cowan & Pettifor, 2009). A meta-analysis of behavioral interventions with adolescents worldwide has found that behavioral interventions have had success at increasing HIV-related behavioral outcomes like condom use, frequency of sex, and number of partners (Johnson, Scott-Sheldon, Huedo-Medina, & Carey, 2011).

A handful of behavioral HIV interventions in Southern Africa have shown some promise in reducing HIV risk behaviors, such as Stepping Stones in South Africa and Regai Dzive Shiri in Zimbabwe. Stepping Stones, a randomized control trial testing a participatory learning intervention with young people to improve their sexual health, was efficacious particularly for the young men in the study. Young men in the intervention arm were more likely to change their sexual behavior – like intimate partner violence, transactional sex, and alcohol consumption – while also reducing their incidence of genital herpes, but not HIV, compared to male participants in the comparison arm (Jewkes et al., 2008). Young women randomized to the Stepping Stones intervention reported no significant behavior changes compared to the comparison arm, except for less transactional sex, and there was no difference in herpes or HIV incidence (Jewkes et al., 2008).
The Regai Dzive Shiri intervention utilized professional peer educators to provide participatory learning materials to build skills and knowledge of youth in and out of school in Zimbabwe (Cowan et al., 2010). The intervention also engaged parents and community members to increase their knowledge about reproductive health and communication skills with youth, as well as training nurses and staff at local clinics to provide youth-friendly reproductive health services (Cowan et al., 2010). Young men and women sampled in the intervention communities exhibited some increases in knowledge and attitudes, but no difference was seen in self-reported risk behaviors or prevalence of HIV and HSV-2 compared to respondents sampled in comparison communities (Cowan et al., 2010).

2.4.2 Behavior interventions are ineffective at the population level

Overall, behavioral interventions for youth in Southern Africa, such as Stepping Stones and Regai Dzive Shiri which include a measure of a biological outcome, typically only have shown an effect on HIV-related knowledge, attitudes and risk behaviors, but not on HIV incidence. Thus far, interventions that impact on risk behaviors have not reduced significantly the transmission of HIV (Cowan & Pettifor, 2009). Further, while some of the behavioral intervention programs may have shown limited efficacy in controlled research settings among individual participants, none have been scaled-up and translated successfully into programs resulting in significant reductions in prevalence in South Africa and elsewhere (Chapman et al., 2010; Gregson, Todd, & Zaba, 2009).

Elsewhere, behavioral interventions that focus on altering individual’s personal behaviors that increase HIV risk – such as condom promotion (Johnson, Carey, Marsh, Levin, & Scott-Sheldon, 2003), HIV (peer) education (Kim & Free, 2008), and voluntary counseling and testing (Denison, O’Reilly, Schmid, Kennedy, & Sweat, 2008) – show some success at altering the target behavior in the study population. Despite these promising results, the protective benefits of behavioral interventions have not translated into a meaningful reduction in the HIV prevalence in South
Africa where there has been little change in the HIV prevalence in the last decade (Merson, O’Malley, Serwadda, & Apisuk, 2008; Ragnarsson, Townsend, Ekström, Chopra, & Thorson, 2010).

2.5 Structural HIV interventions need to be studied

One of the main reasons that most behavioral interventions have been unsuccessful is due to a focus on targeting individual risk behaviors (i.e., the knowledge, attitudes and practices) related to HIV risk without focusing on the social, political, and organizational factors (i.e., the structures) which form the risk environment that influences population HIV risk (Ragnarsson et al., 2010). Factors outside of the direct control of individuals drive much of the epidemic in settings like South Africa. Although the complete mechanism by which environmental-level risks and individual-level risk behaviors work in tandem to affect a young woman’s likelihood of HIV acquisition is unknown, the combination of personal and contextual factors warrants further development and study.

In a systematic review of what does work for HIV prevention with youth in South Africa, Harrison et al. (2010) recommends that successful interventions should: 1) intervene on factors beyond individual’s knowledge and related psychosocial factors and focus on context specific HIV-related causal pathways like gender, sexual coercion, alcohol use or economic risk; 2) affect change in the context of young people’s lives that facilitates the spread of HIV such as economic and skills development; 3) work to alter the social norms that otherwise promote risk behaviors while discouraging protective behaviors; and 4) capitalize on schools and education as a prime venue to target young people, but consider delivering school-based interventions in novel ways that look beyond peer education or teacher-delivered curriculum. In evaluating such structural interventions, one aspect of the research will be to understand and document how the improvements to the environment affect both individual- and population-level HIV risk,
providing an important opening for research on the individual-level psychosocial targets of a structural intervention, such as hope.

2.5.1 Cash transfers as structural interventions

One novel structural intervention targeting the financial barriers to behavior change is the provision of cash transfers. Cash transfer interventions dispense money to participants that help facilitate a desired behavior, typically to promote health and social welfare. Such interventions are often “conditional”, meaning that the receipt of the money is contingent on enacting a prescribed behavior change. While the impact of conditional cash transfer (CCT) interventions is well known for improving general health, nutrition, and educational outcomes for children, particularly in Latin America (Rawlings & Rubio, 2005), less is known about the effect of CCTs on HIV outcomes (Baird, McIntosh, & Özler, 2011). However, the few CCT interventions that have been conducted for HIV prevention have resulted in reductions to sexual risk behaviors (Pettifor, MacPhail, Nguyen, & Rosenberg, 2012). School-related CCTs have been shown to lead to large increases in school enrollment (Baird, Chirwa, McIntosh, & Özler, 2009). In one trial thus far conducted in Malawi, intervention recipients of a conditional or an unconditional cash transfer were less likely at 18-months follow-up to have HIV or HSV-2, to have a partner 25 years or older, and to have sexual intercourse once per week compared to control participants (Baird, Garfein, McIntosh, & Özler, 2012). Even though these results show promise for the impact of education improvements on HIV risk, the study did not measure the effect of the cash transfer intervention on HIV incidence (Pettifor, McCoy, & Padian, 2012).

2.5.2 Overview of the conditional cash transfer intervention parent study

Swa Koteka (“it is possible”) is an innovative CCT intervention being conducted in Mpumalanga province, South Africa, which aims to alter the social and structural factors in the risk environment that put young women at risk for HIV, particularly by introducing a conditional
cash transfer mechanism to improve education opportunities that have been shown to protect young women from HIV infection. By lowering the financial barriers for young women to obtain a secondary education, the intervention aims to promote a less adverse risk environment that will reduce the HIV incidence and risk behaviors of the young women in the intervention arm of the study.

Swa Koteka is a Phase III, randomized control trial using a 2x2 factorial design to reduce the young women’s incidence of HIV. One intervention arm provides cash transfers to female secondary students, ages 13-20, and their parents conditional on school attendance. The other intervention arm conducts community mobilization activities to equalize masculine gender norms with young men ages 18-35 in 12 out of 24 study communities in which the trial is conducted. The primary objective is to determine whether young women who receive the CCT and live in communities with mobilization activities have lower incidence of HIV over the course of the intervention compared to young women who do not receive the CCT nor live in communities with mobilization activities. The intervention is conducted in 24 rural communities in Agincourt, Mpumalanga, home to an annual research census – called the Agincourt Health and Demographic Surveillance Survey (AHDSS) – which serves as a demonstration site to study the health of and services available to residents in rural settings in South Africa (Kahn et al., 2007). Approximately 2660 HIV negative young women ages 13-20 and enrolled in grades 8-11 will be randomized to the intervention arm in which they will receive a cash transfer conditional on their attendance at school or to the comparison arm. Half of the 24 communities will receive community mobilization activities targeting young men to build equitable gender norms that encourage the reduction of the high risk of HIV transmission in young women.
CHAPTER 3: HOPE THEORY

3.1 Chapter overview

This chapter addresses two aspects of hope theory that are relevant to this study: 1) a synthesis of how the hope construct has been described in the literature to inform the conceptualization of how hope should be measured within this study; and 2) a review of theoretical and empirical literature that demonstrates how hope can play a role in HIV prevention. To do so, this chapter covers four main topic areas. First, I explore the history of how hope has been defined in the course of the last fifty years in different disciplines, particularly psychology and nursing, and how this previous work has influenced subsequent measures of hope across disciplines. As examples, I include a description of three well-developed, influential hope theories within the disciplines of nursing and psychology. Second, I review the literature regarding other measurements of hope that have been developed and validated. This review identifies gaps in the measurement of hope that can be addressed by this study. Third, the overview of hope theory and measurement informs how to consider hope from a public health perspective within the context of the HIV epidemic. It includes a discussion of what needs to be modified or added to make hope conceptualizations appropriate for study in public health. The definition of hope developed for use in this study is described here. Finally, I show how hope is linked to the risk environment and sexual risk behaviors, both theoretically and empirically.

3.2 Interdisciplinary development of hope theory

At its simplest, the definition of hope is the wish or desire for something. Yet hope is an abstract construct. Hope has been described with great range, ambiguity and sometimes contradiction: as a particular state, a generalized state, a trait, a disposition, situational, an
emotion, cognition, temporal, multidimensional, a psycho-social factor, and an affective cognitive
factor. When it comes to measuring hope, it is important to have a clear definition of the
construct. As theorizations and conceptualizations of hope have been developed over the last half
century, they have informed the creation of measures of hope. The work of Stotland (1969)
defines the process of hoping, Dufualt and Martocchio (1985) characterizes the essential elements
of hope, and Snyder and colleagues (2002; 2000; 1991) translates theories about the process of
hoping into measures of hope. Together, their work conceptualizes hope both as a process and a
construct, and exemplifies some of the most prominently cited studies that inform the
development of hope scales in different disciplines. These three models also help inform the
approach I used to develop the study’s measure of hope. Prior to this work in the last half-
century, most of the musings on hope were done in the disciplines of philosophy and religion
(Eliott, 2005), which will not be addressed here because of their non-applied nature. The research
on hope thus far has had limited crossover into the field of public health, but interest is growing
in understanding the application of hope to questions about health behavior, behavior change, and
health outcomes (Coughlin, 2006).

Stotland’s Hope (Psychology)

Stotland was one of the pioneers in thinking about the concept of hope and highlighting hope
as a construct to be studied in the 1960s at a time when measurement sciences were developing.
His definition of hope has withstood time and still informs the understanding of hope today.
Further, not only did his definition help identify some of the fundamental elements of hope, but it
also began to elucidate how hope was related to motivating individuals to engage in goal
achievement.

To have hope, according to Stotland, one needs to deem future goals as important and to
perceive the goals as capable of being achieved however improbable, i.e., it is not impossible
(Stotland, 1969). Further, hope is goal directed, and as a result, it is a necessary condition for
Hope provides the motivation to achieve goals through impact on the positive and negative affects that results from working toward a goal, but also helps harness the help of external resources when self-efficacy for the goal is not enough (Stotland, 1969). Having hope creates action towards achieving that goal (i.e., behavior), thoughts about achieving the goal (i.e., emotion), and attention to the select parts of the environment relevant to the goal (i.e., cognition).

Hope is a necessary trait to initiate movement and action towards achieving a goal. The higher the perceived probability that the goal is achievable and the greater the importance of the goal, the more hopeful motivation one will have for goal achievement, therefore helping to improve the chances of goal achievement. These two important pieces—having an important goal (desirability) and perceiving that reaching it is possible (expectancy)—of hoping for something in the future are influenced by one’s cognitive background and experiences to help motivate someone toward action. Hope is not created in a vacuum and is based on personal history, social factors, role-models, and situational experiences and development. One’s hope is created through a combination of repetition and exposure, previous experiences, observations and thoughts related to attaining goals, and important people who help model goal achievement. Thus, how the probability of the outcome success is assessed depends on personal, social, and situational factors (Raleigh & Boehm, 1994).

**Dufault & Martocchio’s Hope (Nursing)**

In conceptualizing their theories of hope, Dufault and Martocchio (1985) identified the essential components that comprise hope, especially pertaining to elderly cancer patients in hospital settings. In doing so, they considered two broad categorizations of hope, including generalized hope that does not map onto any specific outcome and particularized hope that considers a specific goal or outcome. Within generalized and particularized hope, six dimensions emerge (see Figure 3.1):
- Affective – encompasses the feelings – like the emotions and sensations – involved in the hope process;
- Cognitive – encompasses the processes of judging, thinking, reflecting and remembering involved in hoping;
- Behavioral – relates to how people formulate their actions/behaviors in reference to their hope;
- Affiliative – relates to hope beyond oneself and extends into how one relates to others – the interpersonal, social interactions, beyond self;
- Temporal – hoping involves experiences from one’s past, present, and future; and
- Contextual – external surroundings comprise and influence someone’s hope.

Figure 3.1. Conceptual model of the spheres and dimensions of hope (Dufault & Martocchio, 1985)

The strength of Dufault and Marocchio’s hope model resides in a thorough description of the dimensions of hope, but they do not focus beyond these core elements of hope, nor do they theorize how hope is related to goal and future achievement. Their conceptualization of hope lacks specificity in that every aspect of hope found has equal relevancy in the model, but there is no clear delineation of how the disparate elements relate to each other.
Snyder’s Hope (Psychology)

Snyder mapped his theories of hope into a cognitive psychological model (Snyder, 2002; Snyder et al., 2000; Snyder et al., 1991). He then used his theories to develop one of the most influential and cited hope scales to date. His theorizations helped transition the contemporary application of hope beyond clinical settings with patients and towards a more general focus on how hope is a cognitive process related to goal-attainment, via pathways and agency. ‘Pathways thinking’ is defined as the ability to develop many successful plans and options on how to achieve a goal, while ‘agency thinking’ is defined as having the belief and confidence to be successful at reaching a goal (Snyder et al., 1991).

Snyder’s conceptualization of hope is as a cognitive process that is directed towards achieving goals (Floyd & McDermott, 1998). The theory is strongly grounded in a cognitive perspective in which it is believed that hope (the pathways and the agency) itself then leads to emotions and/or affects resulting from whether a goal is attained or not. Hope is solely a cognitive characteristic that initiates movement towards achieving a goal, emotion paths are only engaged once a goal has been attained or not, where it loops back with the potential to impact every step along the way (Figure 3.2). As hope’s pathways thoughts increase to develop more plans to reach a goal and as agency thoughts increase to build confidence in those plans, the likelihood of goal achievement will improve, given that there is a value placed on the outcome. Snyder also envisions hope as a learned process, suggesting that people who are lacking in hope have not been taught properly how to hope (Webb, 2007), though the theory does not address what the critical elements are for the development of hope.
There are three main critiques of Snyder’s hope theory (Aspinwall & Leaf, 2002). First, it does not explicitly consider any external influences on hope, like the role of other people in influencing hopeful thought. Although Snyder’s definition of hope implicitly takes interpersonal influence into account, the Snyder scale does not measure it. Second, it ignores the critical interplay of positive and negative emotion as a key element and posits hope as an entirely cognitive process. Third, although the future orientation of hope is implicit in anything related to goal directed behavior, Snyder’s hope does not give the future a prominent role in his hope measure as is found in all other hope conceptualizations.

3.3 Hope scale constructs/domains

Numerous hope scales have been developed, especially in the fields of psychology, psychiatry, and nursing. Table 3.1 shows a review of the popular hope scales that have been validated and published in the literature, for clinical and laboratory settings. No hope scales that I found have been developed specifically for use in public health efforts, behavior change, or
prevention of disease outcomes, although some – most notably Snyder’s hope scale (Snyder et al., 1991) – have been adapted for this purpose.

The scales presented in Table 3.1 are comprised of various, often similar, domains that make up the construct of hope or hopelessness. Some of the hope scales are unidimensional, with only one domain for hope (Erickson, Post, & Paige, 1975; Gottschalk, 1974; Hinds & Gattuso, 1991). A number of scale domains represent nuanced concepts of positive orientation and expectations for the future, e.g., optimism (Hale, Fiedler, & Cochran, 1992; Scheier & Carver, 1985), future feelings (Beck, Weissman, Lester, & Trexler, 1974; Herth, 1991), future orientation (Miller & Powers, 1988; Nowotny, 1991) or future expectancies (Beck et al., 1974; Herth, 1991). Other hope scales add in realms of agency, efficacy, or control over situations to affect the future, e.g., Snyder (Snyder, 2002). Meanwhile, other hope researchers discuss internal and external elements of hope, including intrapersonal hope that develops from within an individual (Nowotny, 1991; Obayuwana et al., 1982; Raleigh & Boehm, 1994; Stoner, 1997) and interpersonal hope that relies on other people (Fry, 1984; Herth, 1991; Nowotny, 1991; Stoner, 1997). Some of the hope scales include a dimension for the religious or spiritual aspects of hoping (Fry, 1984; Nowotny, 1991; Obayuwana et al., 1982; Raleigh & Boehm, 1994).
<table>
<thead>
<tr>
<th>Scale</th>
<th>Discipline</th>
<th>Validation of the Scale</th>
<th>Domains/Factors</th>
<th>Theoretical framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snyder Hope Scale (State &amp; Trait versions)</td>
<td>Psychology (Snyder, 2005; Snyder, 1991; Snyder, 1997)</td>
<td>Multiple versions exist and validated in different samples, including children, college students.</td>
<td>Agency – “sense of successful determination in meeting goals in the past, present, and future”</td>
<td>Developed using Snyder’s hope theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pathways – “sense of being able to generate successful plans to meet goals”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Despair subscale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunters Opinions and Personal Expectations (HOPE)</td>
<td>Psychiatry (Nunn, Lewin, Walton, &amp; Carr, 1996)</td>
<td>State (56 items) &amp; trait (20-items) version validated in medical students, adolescent males, and psychiatric hospital staff, and earthquake survivors</td>
<td>Hope subscale</td>
<td>Developed using Stotland’s hope theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Despair subscale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Expectancy for Success Scale (GESS) (35 items)</td>
<td>Psychology (Hale, Fiedler, &amp; Cochran, 1992)</td>
<td>Validated with middle-class college students in a longitudinal study</td>
<td>Optimism</td>
<td>Developed using social learning theory and other expectancy theories</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life Orientation Test (LOT)</td>
<td>Psychology (Scheier &amp; Carver, 1985)</td>
<td>Validated with undergraduates</td>
<td>Dispositional optimism</td>
<td>Developed using generalized outcome expectancies &amp; behavioral self-regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopelessness Scale (20 items)</td>
<td>Psychiatry (Beck, Weissman, Lester, &amp; Trexler, 1974)</td>
<td>Validated in hospitalized patients with a recent suicide attempt and non-depressed patients</td>
<td>Future feelings</td>
<td>Developed to measure expectancies; affective tone and loss of motivation for clinical use. Also conforms to Stotland’s definition of hope.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loss of Motivation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Future Expectancies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nowotny Hope Scale (29 items)</td>
<td>Nursing (Nowotny, 1991)</td>
<td>Validated in a sample of well adults and patients with cancer, multiple sclerosis, and spinal cord injuries</td>
<td>Confidence in outcome – the outcome is important and meaningful</td>
<td>Developed as a framework of how to cope with a stressful event with hope, based on Lazurus’s theory of stress appraisal and coping (1978).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relationship with others – hoping involves other people</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Belief in possibility of future – and</td>
<td></td>
</tr>
</tbody>
</table>
that this future is desired and not yet achieved

<table>
<thead>
<tr>
<th></th>
<th>Psychiatry (Obayuwana, 1982)</th>
<th>A psychiatric population and a dental, medical, and graduate students in the United States</th>
<th>Religion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miller Hope Scale (40 items)</td>
<td>Nursing (Miller &amp; Powers, 1988)</td>
<td>Validated in sample of university students enrolled in philosophy, fine arts, or nursing</td>
<td>Satisfaction with self, others, and life</td>
</tr>
<tr>
<td>Geriatric Hopelessness Scale (30 items)</td>
<td>Educational Psychology (Fry, 1984)</td>
<td>Validated among a sample of depressed elderly living in community settings</td>
<td>Lost physical and cognitive abilities, Lost (inter)personal worth &amp; attractiveness, Regaining spiritual faith and grace, Receiving nurturance &amp; recovering respect/ remembrance</td>
</tr>
<tr>
<td>Raleigh Multi-dimensional Hope Scale</td>
<td>Nursing (Raleigh &amp; Boehm, 1994)</td>
<td>Validated in patients with a chronic disease diagnosis</td>
<td>Resource to others, Civic Interest, Spirituality, Health</td>
</tr>
</tbody>
</table>

Developed using Beck (1974) and others’ descriptions of hopelessness

Developed using Dufault & Martocchio (1981) and others’ depictions of hope

No theoretical underpinnings, but informed considering Beck’s hopelessness (1972)

Developed using Stotland’s conceptualizations of hope
<table>
<thead>
<tr>
<th>Description</th>
<th>Field</th>
<th>Methodology</th>
<th>Validated Among</th>
<th>Developed Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-actualization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herth Hope Index (12 items)</td>
<td>Nursing</td>
<td>Validated among adults in clinical settings</td>
<td>Temporality and future</td>
<td>Dufault and Martocchio’s (1985) model of hope</td>
</tr>
<tr>
<td></td>
<td>Herth, 1991</td>
<td></td>
<td>Positive readiness and expectation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Interconnectedness</td>
<td></td>
</tr>
<tr>
<td>Stoner Hope Scale (12 items)</td>
<td>Nursing</td>
<td>Validated in a sample of cancer patients</td>
<td>Intrapersonal hope – interior resources and beliefs</td>
<td>Stotland’s conceptualizations of hope</td>
</tr>
<tr>
<td></td>
<td>Stoner, 1997</td>
<td></td>
<td>Interpersonal hope – transactions with external resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Global hope – broad issues and concerns that are important to people in the general sense</td>
<td></td>
</tr>
<tr>
<td>Erickson Hope Scale (20 items)</td>
<td>Psychiatry</td>
<td>Validated in undergraduates and hospitalized psychiatric patients</td>
<td>Hope</td>
<td>Stotland’s hope theories</td>
</tr>
<tr>
<td></td>
<td>Erickson, Post, &amp; Paige, 1975</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gottschalk Hope Scale (Seven content categories assessed on speech samples)</td>
<td>Psychiatry</td>
<td>Validated with patients with metastatic cancer, acute schizophrenia, and outpatients in a mental health crisis clinic</td>
<td>Hope</td>
<td>No theoretical underpinnings</td>
</tr>
<tr>
<td></td>
<td>Gottschalk, 1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopefulness Scale for Adolescents (24 items)</td>
<td>Nursing</td>
<td>Validated among adolescents with cancer</td>
<td>Hope</td>
<td>Developed using a grounded-theory methodologies with adolescent cancer patients; also informed by Dufault &amp; Martocchio’s (1985) model of hope</td>
</tr>
<tr>
<td></td>
<td>Hinds, 1991</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.3.1 Key components of the hope construct in the literature

In addition to the domains found in the previously developed scales, literature reviews of the hope theory have also been conducted to identify the key components of hope that help inform the development of the hope scale in this research. To identify further which components of hope described in the literature may be relevant for young women in South Africa, I provide an overview of a number of the main elements highlighted by other researchers in the development of a scale or theories related to the construct of hope. Miller & Powers (Miller & Powers, 1988) identified ten characteristics of having hope: including positive interpersonal relationships, sense of possibility, no rigid absolutes for hoped-for events, anticipation of a future, achieving goals, psychological well-being and coping, purpose and meaning in life, freedom, realistic understanding of the situation while remaining optimistic, and mental and physical activation.

Stanley (Stanley, 1978) suggested that there were seven common elements to engage the process of using hope to achieve an outcome: expectation of significant future outcome, being confident in the outcome, taking action to affect the outcome, experiencing comfortable feelings congruent with outcome success, experiencing uncomfortable feelings not congruent with outcome success, having interpersonal related-ness, and having a quality of transcendence or spirituality.

Combining the key components of having hope from Miller & Powers (1988) and the key components of using hope from Stanley (1978), Stoner (1997) synthesized these the key components of hope into four hope domains: 1) future orientation, 2) expectation of attaining important goals, 3) personal hope that is dependent on interactions with others, and 4) feeling the need to escape from despair. Based on Stoner’s reduction of the main characteristics of hope into four themes, measures of hope should try to capture as many of these key elements as possible, provided that they are relevant to the context. I used these guidelines from Stoner (1997) to inform the development of the hope scale among young women in South Africa.
3.3.2 Inadequacy of existing hope measures for young women in South Africa

Considering the numerous hope scales available in the literature and previously validated in other populations, it is important to address why the existing scales are likely inadequate for use with young women in South Africa.

3.3.2.1 Culturally inappropriate for South African youth

Scales that are not culturally generalizable will have difficulty capturing the range of hopeful and hopeless experiences for young women in South Africa. The measures may ask contextually specific items that address economic, religious, and interpersonal facets of hope that are not a part of young South African women’s lived experience. For example, asking about people’s ability to pay their bills on time may not be culturally translatable to settings like rural South Africa where ‘pay-as-you-go’ systems are more common than credit and bill collection. Inclusion of irrelevant items which do not have cultural meaning for youth in South Africa makes it difficult to adapt such scales for that setting. Further, using hope scales that are missing important elements of hope for the South African context – like relying on others to help provide motivation and support for goal achievement – will fail to fully capture hopefulness.

3.3.2.2 Inaccurate or imprecise definitions of hope

In developing a measure of hope, it is important that the scale is guided by a clear definition that conforms to the construct of hope while separating it from other similar constructs. Ostensibly, some hope measures aim to capture hope, but on closer inspection they do not discriminate against similar constructs; they may not really measure personal hopefulness, but measure other constructs like external locus of control, purpose in life, future-oriented self-esteem, and explanatory style. For example, Gottschalk’s hope scale (Gottschalk, 1974) uses content analysis of verbal samples to score levels of hope, but it provides no way to distinguish current affective state from perceptions of the future, a key component of hope. Some scales fail to differentiate wishes (an outcome that is desired but perceived to be unlikely to happen) from
expectations (an outcome that may or may not be desired that is perceived to be very likely to happen), and thus avoid engaging with perceptions of the future (Miller & Powers, 1988; Nowotny, 1991). Scales that lack face validity – e.g., items without a clear connection to hope such as ‘have a good relationship with my father’ (Erickson et al., 1975) that are not backed up further with construct validity to justify their inclusion – do not adequately capture hope.

### 3.3.2.3 Lacking theoretical basis in design

Some of the existing scales do not have theoretical integrity to guide the design of the items and domains of hope. These scales may add in estimations of current positive or negative affect and self-esteem, which are conceptually different than hope, to the items (Miller & Powers, 1988). Snyder’s hope scale includes the construct of self-efficacy to create a scale that measures pathways and agency. Another example is one scale (Nowotny, 1991) that measures too many diverse experiences, including domains like spiritual beliefs and inner readiness without theorization of how those elements are related to hope, and thus is too broad a measure of hope.

### 3.3.2.4 Designed and developed for clinical and/or laboratory settings

In using a hope scale in this study, it is important that the scale have relevancy for applied or community-based settings. Most hope scales have been developed for clinical settings for patients with a disease diagnosis, or in laboratory settings for American university students. Further, the issues surrounding hope for clinics, hospitals, and universities in developed countries where there is ample access to resources provides different insights into hope than what is needed to understand hope in the context of developing countries with few resources.

### 3.4 Study definition of hope

The definition of hope that guides the scale developed in this study emerged from the literature review of hope theory and existing hope measures, as well as analysis of in-depth interviews with South African women for Aim 1. At its simplest for the purposes of this study,
hope is defined as the desire for a good future that is perceived to be attainable. Throughout the study, I conceive of it as a psychological strength. It is a cognitive-affective trait that is alterable and is informed by one’s situational, developmental and personal history, interactions with others, and observations, but in general is a relatively stable disposition. Hope is the generalized wish for achieving goals or desires, but the process of hoping plays a larger role in goal achievement when there is less perceived chance of success. If there is too great a perception that the goal will be attained, it is no longer a hope, but an expectation, which falls under a slightly different cognitive model for achievement than hoped-for goals. Hope is the cognitive and the emotional precursor for developing the beliefs, attitudes and behaviors that will help one reach general and particular goals. Hope is non-specific, meaning that it represents generalized desires and does not necessarily need a focus or target. The focus of hope can be for a short-term, a long-term and/or an indeterminate future, but is influenced by the past and present.

For the purposes of the hope scale developed in this study, the main components of hope have been categorized into three different domains informed by recommendations from Stoner (Stoner, 1997) coupled with findings from the qualitative interviews with young women in rural South Africa. These domains include: 1) anticipation of a positive future, 2) personal motivation to achieve goals; and 3) the influence of others on hope. Table 3.2 presents an overview each of these three domains, including references to similar constructs found in other measures or theories of hope.
Table 3.2 Overview of hope domains and related constructs in the hope theory and measurement literature

<table>
<thead>
<tr>
<th>Hope Domain</th>
<th>Description of the Domain</th>
<th>Related hope constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipation of a positive future</td>
<td>Passive hope for a wished-for future, and trust that such a future is possible.</td>
<td>• Future orientation (Stoner 1997)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Anticipation of a future (Miller &amp; Powers 1988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Belief in the possibility of a future (Nowotny 1991)</td>
</tr>
<tr>
<td>Personal motivation to achieve goals</td>
<td>Active hope to attain the desired future, and the self-confidence, motivation, and planning done to help achieve that future.</td>
<td>• Expectation of attaining important goals (Stoner 1997)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Goal achievement (Miller 1988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Active involvement (Nowotny 1991)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agency (Snyder, 2002)</td>
</tr>
<tr>
<td>Influence of others on hope</td>
<td>Having the reliance and ability to seek the help others when aiming to achieve hoped-for goals.</td>
<td>• Personal hope that is dependent on interactions with others (Stoner 1997)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interconnectedness (Herth 1991)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Affiliative hope (Dufault &amp; Martocchio, 1985)</td>
</tr>
</tbody>
</table>

3.4.1 Domain 1: Anticipation of a positive future

Anticipation of a positive future is a form of passive hoping in which there is a basic trust that the future will be good, which relies on believing in oneself, other people, God, and events so that your future will turn out well. This is the facet of hope that differentiates it from the individualistic nature of efficacy thinking, which solely relies on the feelings and beliefs in personal abilities to make things happen. Hope also encompasses believing that which is not able to be accomplished personally can be facilitated by external factors, like other people and/or resources. This domain of hope helps people consider that their goals are possible, despite any contrary evidence, without necessarily identifying how those goals can be reached. This domain captures someone’s belief that anything is possible, regardless of whether someone has the means, skills, capacity, or resources to achieve them. Anticipation of a positive future is the passive, emotional component of hope that is comprised of the beliefs and attitudes that one needs to hold desires and wish for something in their future. Domains similar to anticipation of a
positive future are found in other hope scales, like Miller and Power’s (1988) anticipation of a future and Nowotny’s (1991) belief in a possibility of the future.

3.4.2 Domain 2: Personal motivation to achieve goals

Personal motivation to achieve goals is a form of active hoping, having the confidence to rely on oneself to achieve the hoped for goals. Having self-reliance and self-confidence will help set people on the path to achieve their goals. Personal motivation to achieve goals is the active, cognitive portion of goal attainment. This includes the agency, and the thinking and planning that someone does to achieve what they wish for. Domains similar to personal motivation to achieve goals are found in Miller & Power’s (1988) goal achievement, Nowotny’s (1991) active involvement, and Snyder’s (1991) agency.

3.4.3 Domain 3: Influence of others on hope

Influence of others on hope captures how hope is not only an individualistic process and the hope one has is determined by one’s context, particularly the people in your life, including the family and friends of young women in South Africa. Having trust in other people is an important facet of feeling hopeful and helps to heighten the belief that things are possible when one knows that if they reach the limits of their capabilities, they can turn to other people for help to achieve their goals. Other people help shape beliefs about what is possible in the future and how future goals can be attained. This domain captures the important interpersonal aspects of one’s hope. In addition to confidence and trust, hope is affiliative (Dufault & Martocchio, 1985), meaning that it depends on social interactions and connectedness with others.

3.5 Linking hope to HIV

While the first half of this chapter was devoted to establishing the nature of the hope construct and how it has been measured, the rest of the chapter focuses on the determinants, associations, and consequences of hope particularly with regards to behaviors and health. As the
field of public health has begun to borrow hope from nursing and psychology due to its potential to play a role in the individual and population health and disease outcomes (Barnett, 2007, 2008a; Bernays et al., 2007; Coughlin, 2006), it is important also to consider empirical findings relating hope to health behaviors and outcomes especially in relation to HIV prevention.

3.5.1 Hope among PLWHA

The majority of the literature regarding hope and health prevention focuses on health-related issues after a diagnosis with a chronic or acute disease, such as cancer or HIV. It is often studied in regards to care and treatment of individuals and how they cope with that chronic disease. Research into the relationship of hope with chronic diseases is one of the main foundations from which hope theory got its start (Stoner, 1997). With the identification of HIV-related illnesses nearly 30 years ago, hope research related to HIV began mostly with regard to the clinical and palliative care of PLWHA. Much of the hope and HIV-related literature focuses on issues of hope in PLWHA and how that affects their access to care, treatment, and other health services. The majority of these studies use qualitative methods to characterize hope, consider hope as a cofactor with HIV in the qualitative sense, and describe how PLWHA maintain hope along with their diagnosis with HIV. Before the advent of ART for PLWHA, hope was found to help promote coping mechanisms that resulted in fewer AIDS-related sequelae (Harrison, 1993). In settings where the delivery of treatment is still unstable, hope provides the means to deal with the uncertainty of treatment access and rationing (Rhodes, Bernays, & Terzi 2009). The combination of hope and spirituality help PLWHA cope better with their HIV illness outcomes (Carson, Soeken, Shanty, & Terry, 1990). Hope, in a dynamic combination with hopelessness and despair, changes on a day-to-day basis for PLWHA determining how they deal with their diagnosis and infection (Kylmä, Vehviläinen-Julkunen, & Lähdevirta, 2001).
3.5.2 Hope and health behaviors, including HIV-related risk behaviors

Hope has not only been shown to be associated with dealing with disease, it also relates to health behaviors. While much is known about how negative emotions, like anxiety, anger, and depression, are associated with greater risk of a poor health outcome or disease, less is known about the role that positive emotions play on our health (Richman et al., 2005). While there is increasing evidence for the impact of positive emotions on better health, more research is needed to understand this process. In particular, hope is a promising construct for further exploration of the relationship of psychological strengths on risk behaviors and health outcomes. Thus far, other positive psychosocial factors similar to hope, like optimism, have been conceived as variables predicting health outcomes through the regulation of behavioral actions (Scheier & Carver, 1985). Yet when related to HIV-risk behaviors directly, greater optimism was found to be associated with more risk behaviors in HIV positive gay men in the 1990s (Perkins, Leserman, Murphy, & Evans, 1993 & Evans, 1993).

Hope has been related to a number of physical and mental health outcomes, as well as indirectly to knowledge and behaviors. Among inner city adolescents living in conditions of constant stress, their hope is related to self-care agency activities, which is ultimately tied to health risks and outcomes; hope may work as a protective mechanism in youth by improving knowledge and ability to practice self-care in stressful environments (Canty-Mitchell, 2007). Irving (1998) found that high hope women had better knowledge regarding cancer facts and prevention, suggesting that they would be better equipped to prevent cancer and cope with a diagnosis. People with higher hope are significantly more likely to exercise, a preventative behavior associated with numerous health benefits (Snyder et al., 1991). In an exploratory study, hope was related to greater self-reported health and a lower BMI (Kelsey et al., 2011). In adolescent young women in Nepal, hope was found to be associated with more positive health practices, including nutrition, exercise, relaxation, safety and substance use avoidance (Mahat &
Scoloveno, 2001; Mahat, Scoloveno, & Whalen, 2002). Hope has been shown to be associated with other preventive health behaviors, like physical activity (Harney, 1990), and adherence to asthma medicine (Moon, 2001). Hope, but not other psychosocial traits, predicted fewer reports of severe illness in a longitudinal study of college students (Scioli et al., 1997).

Hope’s relationship with sexual risk behaviors is not well understood empirically in the research literature. A few exploratory studies have assessed this association in the context of the United States. Gay men with higher hope, compared to those with lower hope, were more likely to report protective sexual behaviors putting them at decreased risk for HIV infection (Floyd & McDermott, 1998). Compared to their hopeful peers, hopeless inner-city youth had an increased likelihood of having sex in the last week, trying to get a girl pregnant, or already having a child (Bolland, 2003). A limited body of research exists which links hope to HIV infection, exploring hope among PLWHA who have received an HIV diagnosis. Prior to the introduction of highly active antiretroviral therapy (HAART), HIV positive gay men were more likely to have higher levels of hopelessness than HIV negative gay men (Catalan et al., 1992).

3.5.3 Hope and the risk environment

Not only has hope been shown to be an antecedent to sexual risk behaviors, hope is a psychological strength that fundamentally is formed by the risk environment (Snyder et al., 1996). In this study, the term risk environment refers broadly to the social, physical, political, and economic factors that are external to an individual that serves as a stressor and increases the risk of HIV transmission. The risk environment is further divided into two levels: 1) the micro-environment which is more proximal to a person such as community and household environments; and 2) the macro-environment which is more distal, such as structural factors that include laws, cultural norms, and economic conditions (Rhodes & Simic, 2005). The risk environment for adolescent’s development of hope is especially critical, because this is the stage
when aspirations and goals for the future are built based on how youth confront social, financial, educational and cultural factors in their lives (Harris, Duncan, & Boisjoly, 2002).

While few findings exist that directly demonstrate that the risk environment impacts hope, other research has shown the link between the risk environment and psychological liabilities, such as depression. In the United States, neighborhood stressors, particularly violence and physical decay, were associated with depression and depressive symptoms (Mair, Diez Roux, & Morenoff, 2010), a finding supported elsewhere in the United States (Latkin & Curry, 2003). Neighborhood and household poverty has also been shown to be associated with depression (Belle Doucet, 2003). Less is known about how the risk environment in rural South Africa affects psychological factors such as hope or depression. For young people in South Africa, their expectations for the future are hampered by macro- and micro-risk factors they perceive as social problems, including violence, poverty, crime, and HIV, but also improved by social strengths including the freedom and opportunity resulting from the end of apartheid (Steyn, Badenhorst, & Kamper, 2010).

### 3.5.4 Conceptual links between hope and HIV risk

Conceptual research to describe the role of hope in HIV prevention is developing in tandem with a growing body of empirical literature that links hope to the risk environment and to HIV risk behaviors. The importance of introducing the construct of hope into research on HIV prevention is that it provides a bridge between risky environments and how such environments can affect individual HIV risk behavior. Some HIV researchers suggest implicitly the theoretical link between hope and HIV. MacPhail (2003) mentions how informants in South Africa discussed raised expectations that they were not able to achieve as a result of the situations and contexts in which they lived, and attributed their increased HIV risk behaviors to the resulting hopelessness. Others have more explicitly stated that the mechanisms by which hope fosters health and well-being need to be studied. In so doing, Coughlin (2006) suggests that public health researchers and practitioners should include hope in conceptual models, particularly ethical public health
frameworks, as well as acknowledges that hope is likely to mediate the relationship between prevention barriers, e.g., risk environments, and health risk behaviors.

To understand the role of hope in the context of HIV prevention, this dissertation study is guided by the relationships presented in the Hope and HIV Prevention framework. Bernays and colleagues (2007) developed the framework to explain how hope acts to link individuals and their HIV risk behaviors to the risk environments in which they live. According to the framework (Figure 3.3), the risk environment, e.g., the social, political, economic, and physical context that facilitates HIV-related risk behaviors, influences hope as an ability to invest in the future. High-risk environments diminish hopefulness because of the limited future opportunities available, while low-risk environments increase hopefulness. In turn, the hope that is influenced by the risk environment affects capacity to invest in HIV prevention, namely HIV risk behaviors. In addition, hope also provides the motivation to take advantage of resources available in a low-risk environment and improves the means of making rational choices about the risk behavior to protect oneself from HIV (Barnett, 2008a). The capacity to invest in HIV prevention efforts cycles back positively to reinforce the risk environment. In the case of a high-risk environment, this feedback loop from HIV-risk behaviors back onto the high-risk environment suggests a mechanism explaining how HIV epidemics are perpetuated in high-risk settings without intervention to improve the environment. Therefore, the framework also suggests the potential for structural interventions to diminish the riskiness of the environment, thereby putting people on a path toward higher hope and less risk behavior. The application of the framework and other empirical findings linking the risk environment, hope, and HIV risk to this study’s conceptual model will be described in Chapter 4.
Figure 3.3. The Hope and HIV Prevention framework (Bernays et al., 2007)
CHAPTER 4: STUDY AIMS, RESEARCH QUESTIONS, HYPOTHESES, AND CONCEPTUAL MODEL

4.1 Chapter overview

The purpose of the dissertation study was to create and validate a measure of hope to help explore how hope is related to the risk behaviors and the risk environments which increase young women’s risk of HIV infection in South Africa. The first aim was exploratory, thus it includes research questions but is not guided by hypotheses. The second aim involved scale development and validation; the majority of the hypotheses address the relationship of the hope measure with other related constructs to assess construct validity of the newly-created hope measure. The third aim was analytical and included hypotheses concerning the relationship between hope and the household risk environment, hope and sexual risk behaviors, and hope’s role in mediating the relationship between the household risk environment and hope. The nature of these relationships for Aim three was guided by the Hope and HIV Prevention framework (Bernays et al., 2007) and is described below along with the conceptual model for the study.

4.2 Study aims, research questions and hypotheses

Specific Aim 1: To conduct formative research to describe South African young women’s meanings of hope.

To explore young women’s conceptualizations of hope, the research questions focused on three main topics, including 1) the meanings of hope, 2) the characteristics of hopeful young women, and 3) the relationships of hope with young women’s future.

Meanings of hope

- RQ1.1: How do young women describe their hope?
• RQ1.2: What does hope mean to young women?
• RQ1.3: What are the different elements of hope that women describe?
• RQ1.4: How do young women perceive their friends’ and peers’ thoughts on hope?

Identifying hopeful young women

• RQ1.5: What facilitates a young woman to be hopeless or hopeful?
• RQ1.6: What are the identifying characteristics of someone who is hopeful or hopeless?
• RQ1.7: What are the experiences of young women who are hopeful or hopeless?

Hope and young women’s future

• RQ1.8: What role does hope play in the lives of young women?
• RQ1.9: How do young women’s hopes affect their thoughts on their future?
• RQ1.10: How do young women envision their lives will be like in their future?
• RQ1.11: What are the important things that young women want in their future?
• RQ1.12: What are young women’s goals for their future?

Specific Aim 2: To develop and validate a scale that reliably measures the construct of hope in a sample of young women in rural South Africa.

In developing the scale, four research questions guided the data collection. The second research question (RQ 2.2) is exploratory, and therefore does not include hypotheses. I provide an explanation for the choice of validation variables for the fourth research question (RQ 2.4) in Chapter 6.

• RQ2.1: What are the domains that measure hope?
  o Hypothesis: Hope is a multi-dimensional construct in the lives of young women.
    Three independent domains of the construct of hope form the basis for the new measure: personal motivation, future aspirations, and influence of others.
Hypothesis: The three domains of hope will be significantly correlated with one another.

- RQ2.2: What domains and accompanying items capture the breadth of the construct of hope?
- RQ2.3: How reliable is the new measure of hope?
  - Hypothesis: Each subscale of the hope measure will provide adequate internal consistency (Cronbach’s $\alpha > 0.65$).
- RQ2.4: What is the relationship between hope and other variables that establish the validity of the hope construct?
  - Hypothesis: The relationship between the hope measure and other indicators previously shown to be associated significantly with hope in other settings will be statistically significant and in a direction and magnitude consistent with assessing construct validity (Table 4.1). At least 60% (5 out of 9) of the predicted relationships should occur in the sample for the hope scale to show acceptable construct validity.

Table 4.1. Construct validity of the new hope measure by hypothesizing the magnitude and direction of its relationship with other measures

<table>
<thead>
<tr>
<th>Associated Variable</th>
<th>Predicted direction</th>
<th>Predicted magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade in school</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Mental health variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Depression</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Social support variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family support for school</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Life stressors variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of one or both parents</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Household move in last year</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Behavioral risk variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom self-efficacy</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td>Ever been pregnant</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
</tbody>
</table>
Specific Aim 3: To empirically test the relationship between South African young women’s risk environment and hope, between hope and sexual risk behaviors, and whether hope mediates the relationship between the risk environment and sexual risk behaviors.

In examining whether hope mediates the effect of the household risk environment on young women’s sexual risk behaviors, five research questions guided the analysis.

• RQ3.1: Are the characteristics of how the young women’s household is structured, i.e., the household demographic characteristics, associated with the young women’s hope?
  o Hypothesis: As the size of the number of people living together in the household with the young woman increases, the likelihood of having high hope decreases.
  o Hypothesis: Increases to the number of youth living in the young woman’s household will decrease the likelihood of high hope.
  o Hypothesis: As the number of youth enrolled in school in the household increases, young women’s likelihood of high hope increases.
  o Hypothesis: As the percent of school-aged youth in the household who are enrolled in school increases, young women’s likelihood of high hope increases.
  o Hypothesis: Young women living in a household that is headed by a female compared to a male will be less likely to have high hope.
  o Hypothesis: Young women living in a household together with at least one biological parent will be more likely to have high hope compared to young women not living with a biological parent.
  o Hypothesis: As the percentage of females living in the household increases, the likelihood of young women having high hope decreases.
  o Hypothesis: Increases to the average household age will increase the likelihood that young women report high hope.

• RQ3.2: How does household SES relate to young women’s hope?
o Hypothesis – As the household’s consumption of food and non-food items per capita increases, young women’s likelihood of reporting high hope will increase.

o Hypothesis – Young women living in a household with higher levels of education for the head of household will be more likely to have high hope compared to households with lower levels of head of household education.

o Hypothesis - Young women living in a household with food security will be more likely to report high hope compared to young women living in a household with food insecurity.

• RQ3.3: What elements of the household risk environment, including household demographics and household SES, are related to young women’s sexual risk behaviors?

  o Household demographic characteristics that suggest a less adverse risk environment for young women – including smaller household size, fewer youth, greater number of youth in school, a greater percentage of youth enrolled in school, male-headed households, biological parent living in household, a lower percentage of females living in the household, and an older average household age – will be associated with a greater likelihood of young women having high hope.

  o Households with a higher SES – more household consumption, greater head of household education, and having food security – will be associated with a greater likelihood of young women having high hope.

• RQ3.4: To what extent is young women’s hope related to their sexual risk behaviors?

  o Hypothesis: Young women with high hope compared to low hope will be less likely to have had a sexual debut.

  o Hypothesis: Sexually active young women with high hope compared to low hope will be more likely to have used a condom with their most recent sexual partner.
Hypothesis: Sexually active young women with high hope compared to low hope will be less likely to report an early sexual debut before the age of 15 years.

Mediated effect of hope

- RQ3.4: To what extent does young women’s hope mediate the relationship between the household risk environment and young women’s sexual risk behaviors?
  - Hypothesis: Young women with household demographic characteristics that suggest a less adverse risk environment will report a higher frequency of high hope, and in turn will be less likely to engage in sexual risk behaviors.
  - Hypothesis: Young women living in household with higher SES will be more likely to report high hope, and in turn will be less likely to engage in sexual risk behaviors.

4.3 Conceptual Model

The conceptual model guiding Aim 3 is highlighted in Figure 4.1 and depicts the hypothesized relationships between the household risk environment, hope and sexual risk behaviors that were explored in this dissertation. The development of the conceptual model was predominantly informed by the Hope and HIV Prevention framework developed to explain how the structural risk environment influences hope and how hope in turn affects HIV transmission (Barnett, 2007; Bernays et al., 2007) (see Section 3.4.4 for a review). The Hope and HIV Prevention framework provides the rationale for the associations through which the household risk environment has the potential to affect hope, which in turn has the potential to affect young women’s sexual risk behaviors. However, to create the study’s conceptual model by operationalizing the framework, I also considered general hope theory (Snyder, 2002; Stotland, 1969) and empirical evidence relating health behaviors to hope and other future expectations (see Section 3.4.2 for a review). The conceptual model provides a basis for understanding how hope mediates the relationship between young women’s current household risk environment and their
reported sexual risk behaviors. Exploring the relationships depicted in the conceptual model guides the analysis for Aim 3. In the following section, I provide the working definition of the household risk environment and the sexual risk behavior constructs used in the conceptual model. (Meanwhile, see chapter 3 for the study definition of the hope construct.)

![Figure 4.1. Conceptual model for study Aim 3 – operationalizing the Hope and HIV Prevention framework for use with young women in rural South Africa](image)

**Household Risk Environment**

In operationalizing the risk environment, this study uses the same conceptualization of the risk environment (Rhodes & Simic, 2005) referenced by the authors of the Hope and HIV Prevention framework (Bernays et al., 2007). The risk environment is broadly comprised of all the HIV-related risk factors beyond the level of the individual, and includes macro-level risks that are more distal to individuals and the micro-level risks that are more proximal to (Rhodes & Simic, 2005). The risk environments at the macro- and micro-level are composed of the social, physical, economic, and policy environments in which people live. The household risk environment that is explored in this study is just one small facet of the micro-level risk environment related to the risk of HIV, which resides in a broader risk environment (Rhodes & Simic, 2005). The physical environment in which young women reside, such as their household, has the potential to foster their mental health, like hope, and in turn affect their sexual risk
behaviors. I chose two sub-constructs of the household risk environment to act as the independent variables associated with hope in the study. The first sub-construct, household demographics, characterizes which family members and how many live together in the household with the young women in the study. The variables selected to represent household demographic variables were selected broadly based on work conducted in Agincourt (Madhavan & Schatz, 2007; Wittenberg & Collinson, 2007). To measure household demographics, I explored whether the household size, number of youth in the household, the number of eligible household youth enrolled in school, the percentage of household youth enrolled in school, the household was headed by a female, at least one of the young woman’s biological parents lived in the household, the percentage of females living in the household, and the average household age were characteristics less adverse household risk environment on young women’s hope and sexual risk behaviors.

The second sub-construct of the household risk environment measures the socio-economic status (SES) of the household. I used three variables to measure household SES. First, household consumption places a monetary value on all the food and non-food items that the household produces or purchases (Thirumurthy, Nguyen, Pettifor, & MacPhail, in preparation). Second, head of household education indicates the highest level that the head of household obtained. Third, food insecurity captures if the household indicates evidence of not having enough food to eat. Greater household SES has the potential to provide a more protective household risk environment in which young women benefit from increased access to resources that may help to increase their level of hope and decrease their sexual risk behaviors.

**Sexual Risk Behaviors**

Sexual debut was the primary sexual risk behavior explored in this study. In a setting like South Africa where the prevalence of HIV is high, young women who have had sex are at risk for HIV (Pettifor et al., 2009). As the main sexual risk variable, I used sexual debut to indicate whether young women have ever had vaginal and/or anal sex, or never had vaginal and/or anal
sex. I also examined other risk behaviors in which young women engage after they become
sexually active. For these secondary sexual risk variables representing previous sexual risk
behaviors, I focused on early sexual debut (before 15 years old) and condom use with the most
recent sexual partner. Early age of sexual debut represents a risk variable that characterizes when
a young woman first becomes sexually active, whereas condom use at most recent sex describes a
more contemporary measure of young women’s risk behavior. Analyses to explore sexual debut
were conducted among the entire sample, while analyses on age of sexual debut and condom use
were conducted on the subset of young women who reported sexual activity.
CHAPTER 5: HOPE MATTERS: DEVELOPING AND VALIDATING A MEASURE OF FUTURE EXPECTATIONS AMONG YOUNG WOMEN IN A HIGH HIV PREVALENCE SETTING IN RURAL SOUTH AFRICA

5.1 Introduction

There is a growing interest in hope as a construct that may influence risk behaviors and ultimately health outcomes (Coughlin, 2006). Research has related hope to numerous protective behaviors, ranging from performance in school (Brown & Jones, 2004), to deterring substance use (Carvajal, Clair, Nash, & Evans, 1998 & Evans, 1998), and to colorectal cancer screening (Greiner, Born, Nollen, & Ahluwalia, 2005 & Ahluwalia, 2005). Much of the research linking hope to health has focused on chronic or fatal diseases, such as cancer, and the impact of hope on disease prognosis (Hasson-Ohayon, Braun, Galinsky, & Baider, 2009; Hinds et al., 1999), but understanding the connection between hope and an HIV diagnosis has also been an area of interest. For example, hope has been studied in the context of care and treatment of people living with HIV/AIDS (PLWHA) (Kymlä et al., 2001), especially in regards to coping with HIV (Petersen et al., 2010; Sánchez, Rice, Stein, Milburn, & Rotheram-Borus, 2010), treatment (Rhodes et al., 2009), AIDS dementia (Kelly, 2007), and quality of life (Yadav, 2010).

While much is known about the importance of hope for PLWHA, less is known about the role that hope plays in HIV prevention. Hope has been conceptualized as a positive psychosocial strength that is influenced by the social environment and protects against risk (Snyder et al., 1991). Hope has been theorized to be an important mediator between the risk environment in resource-poor settings and the capacity for HIV-risk behavior change that leads to improved HIV-related health outcomes (Bernays et al., 2007). A few studies have empirically demonstrated the
relationship between hope and HIV-related sexual risk behaviors in resource poor settings. For example, hopelessness in inner-city youth was associated with riskier sexual behaviors, including having had sex in the last week, intentions to get a girl pregnant, and already having a child (Bolland, 2003), as well as inconsistent condom-use with a secondary sexual partner (Kagan et al., 2012). These findings, which demonstrate a link between hope and HIV-related risk behaviors in resource poor settings, provide justification for further exploring the role of hope for HIV prevention.

South Africa is a resource poor setting with a high prevalence of HIV. An estimated 5.6 million people out of a population of approximately 50 million are infected with HIV (UNAIDS, 2012). Young women in South Africa are particularly at risk for HIV, where more than 13.9% of women ages 15-24 are infected with HIV compared to approximately 3.6% of their male peers (International Group on Analysis of Trends in HIV Prevalence and Behaviors in Young People in Countries Most Affected by HIV, 2010). Understanding young women’s hope in South Africa and its relation to their HIV-related risk behaviors may shed light on how to improve HIV prevention initiatives for young women. Because hope is a psychosocial trait that is influenced by the surrounding risk environment (Snyder et al., 1991), cultural and social differences likely inform conceptions of hope. As a result, measures of hope developed in non-South African settings may not adequately capture the hope of South Africans. Yet, so far, no measure of hope has been developed or validated for use in a high HIV prevalence setting like South Africa. Therefore, the purposes of this study are to explore how young women in South Africa characterized and defined hope by using qualitative data collection methods, and then use those findings to develop and validate a measure of hope.

Conceputalizations of hope

In order to develop a measure of hope for young women in South Africa, it is important to review how hope has been conceptualized in the literature. As a psychological construct, hope is
the wish or desire to have a positive future. It is an example of a future expectancy identified as a potential psychosocial determinant of health (Snyder, 2002), particularly in relation to HIV transmission (Bernays et al., 2007). Future expectancies are divided into outcome and efficacy expectancies, both of which consider the prospects anticipated for the future. Hope is unique as an outcome expectancy because it promotes the consideration of the most desirable future even if the likelihood of that future is improbable. These future expectations, such as hope, motivate individuals toward reaching a future goal in order to achieve that desire. Hope is just one of a number of constructs that describe future expectancies, such as optimism – another outcome expectancy (Scheier & Carver, 1985), and generalized self-efficacy – an efficacy expectancy (Hale et al., 1992). Other outcome expectancies, such as optimism, also indicate wishes for future scenarios without considerations of the likelihood of realizing that outcome.

Several dimensions of hope have been identified that guide the development of this study’s hope scale. Hope theory research has identified key elements that comprise various dimensions of having hope and using hope to achieve an outcome. These dimensions have been used to inform the creation of our hope measure. Among the chronically ill, hope has been described as encompassing two spheres, a generalized sphere of hope that covers abstract or unspecified events and a particularized sphere of hope that targets a specified event or outcome (Dufault & Martocchio, 1985). These spheres are separated into an affective dimension to capture emotions related to hope, a cognitive dimension to describe the process of judging and thinking that is necessary for hope, a behavioral dimension relating to hopeful actions and activities, an affiliative dimension to indicate that hope extends beyond oneself, a temporal dimension to capture the past, present and future aspects of hope, and a contextual dimension to consider that external surroundings influence hope (Dufault & Martocchio, 1985).

Through a review of the theoretical hope literature for healthy adults, Millers and Powers (Miller & Powers, 1988) identified ten critical characteristics of having hope: 1) positive
interpersonal relationships; 2) the sense of possibility; 3) no rigid absolutes for hoped-for outcomes; 4) anticipation of a future; 5) achieving goals; 6) psychological well-being; 7) purpose and meaning in life; 8) realistic understanding of the situation; 9) freedom; and 10) mental and physical activation. Some of Millers & Powers' ten critical characteristics conceptually overlap with Dufault & Martocchio’s spheres or dimensions. For instance, the ‘positive personal relationships’ characteristic is similar to the ‘affiliative dimension’, the ‘realistic understanding of the situation’ characteristic relates to the ‘cognitive dimension’, or the ‘no rigid absolutes’ characteristic is like the ‘generalized sphere’. Other components are unique to each of the theories, for example the ‘particularized sphere’ does not have an analogy in Millers & Powers’ hope conceptualization, while ‘freedom’ does not have a counterpart in Dufault & Martocchio hope theory.

Further reviews of the conceptualization of hope in both healthy and ill populations by Stoner (1997) built on the hope theories of Dufault & Martocchio, Millers & Powers and others to combine multiple dimensions of hope into the most salient and parsimonious domains. Stoner simplified the key hope concepts into four domains, including future orientation, expectation of attaining important goals, personal hope that is coupled with interaction with others, and the need to escape from despair. Consideration of these four key components of hope was used to guide our analysis of qualitative data in order to identify facets of the hope construct that are most relevant for young women in South Africa.

Numerous hope scales have previously been developed outside of high prevalence HIV settings. These scales measure various combinations of hope dimensions within different populations, e.g., temporality, expectations, and interconnectedness among the chronically ill (Herth, 1991); outcome confidence, relationship with others, spiritual beliefs, belief in future possibilities, active involvement, and inner-readiness among healthy and ill adults (Nowotny, 1991); resource to others, civic interest, spirituality, health, social support, and self-actualization
among chronic disease patients (Raleigh & Boehm, 1994); despair and hope among clinicians and earthquake survivors (Nunn, Lewin, Walton, & Carr, 1996), positive orientation among adolescent cancer patients (Hinds & Gattuso, 1991), and intrapersonal, interpersonal, and global hope (Stoner, 1997). For the most part, these scales were developed for use in clinical or laboratory settings but not necessarily for use in consideration of how public health programs affect behavior change and health outcomes. Therefore, they would not likely adapt well to understanding HIV risk in the context of the HIV epidemic in South Africa.

The most well-known and utilized hope scale among general population samples was developed by Snyder and colleagues (1991, 1997). Snyder’s theory envisions hope as a cognitive process that relates to goal attainment through two dimensions, pathways and agency (Snyder, 2002; Snyder et al., 2000). ‘Pathways thinking’ is defined as the ability to develop many successful plans and options related to achieving a desired goal. ‘Agency thinking’ is defined as having the belief and confidence to be successful in achieving a goal. Despite the popularity of the Snyder Hope Scale, it may have limited relevance for measuring hope in settings that have an on-going HIV epidemic because it does not take into account how other people influence hope; it focuses on only measuring the cognitive aspects of hope without considering the emotional or contextual components, and it does not explicitly measure the future orientation of hope (Aspinwall & Leaf, 2002). Up to this point, we do not know of any hope scale that has been developed specifically for use with public health efforts in relation to behavior change or the prevention of disease outcomes, such as HIV prevention.

**Constructs associated with hope**

Based on hope theory, previous hope validation studies and empirical findings, constructs related to hope were chosen to assess the validity of the developed scale. We selected five categories of validation constructs: 1) education; 2) mental health; 3) life stressors; 4) social support; and 5) behavioral risks. First, education likely is associated positively with hope because
completing more school increases opportunities for the future (Bundy & Gotur, 2002). Second, mental health variables have been used previously to establish the construct validity of other hope measures (Nunn et al., 1996; Snyder et al., 1991). For example, negative psychosocial affects such as anxiety and depression are associated with the inability to think positively about the future, i.e., hope (Snyder et al., 1991). Third, life stressors, such as having a parent die or moving households, have negative effects on youths and their development of hope. Although adolescents generally are resilient to life stressors over the long term, abrupt negative changes in the last year may limit their expectancies for positive future outcomes. Unexpected stressors reduce hope (Snyder et al., 2000), while more hope helps buffer the impact of stressors (Folkman & Moskowitz, 2004). Traumatic events in a child’s lifetime limits future expectations and hopefulness (Zhang et al., 2009), and losing one or both parents as a child is one of the most traumatic events that an adolescent can experience (Haine, Ayers, Sandler, & Wolchik, 2008). Although moving households is not as traumatic as a death in the family, it is a stressful life event, especially for adolescent girls (Raviv, Keinan, Abazon, & Raviv, 1990). Fourth, social support acts as a buffer against life stressors (Cohen & Wills, 1985), and increased family social support results in greater positive expectations for the future (Dubow, Arnett, Smith, & Ippolito, 2001). We focused on the school support provided by the family to measure the instrumental and informational social support associated with hope. Fifth, the relationship between hope and health behaviors is less established. Nevertheless future expectations have been associated with risk behavior, particularly sexual and substance use behaviors (Leslie et al., 2010). For example, condom self-efficacy suggests intentions to engage in a risk/protective behavior, and has been linked to optimism, a future expectation similar to hope (Bryan, Aiken, & West, 2004).

Study setting

The hope scale was developed for use with young women who live in rural South Africa. Young women living in the rural communities in which the research took place – in Agincourt,
Mpumalanga—a region of South Africa—have an HIV prevalence of 8% (ANC, 2006). This study was nested within a structural-level randomized control intervention trial conducted in Agincourt. The conditional cash transfer (CCT) parent intervention study is an ongoing HIV prevention trial which provides cash transfers to young women ages 13-20 and their families contingent upon young women’s attendance in secondary school in order to reduce their HIV and herpes simplex virus (HSV-2) incidence, as well as sexual risk behaviors (Pettifor, MacPhail, & Kahn, in preparation; Sista et al., 2011). Agincourt is also the site of the Agincourt Health and Demographic Surveillance Survey (AHDSS), which collects an annual census of all Agincourt residents (Kahn et al., 2007) and serves as an important resource for identification and recruitment of CCT study participants. Our research occurred during the pilot and the baseline recruitment stages of CCT prior to the assignment of the young women into the conditional cash transfer arm or a non-intervention comparison arm. During the pilot stage of the CCT intervention, conducted February-October 2010, the CCT parent study tested intervention activities, logistics, and the provision of the conditional cash transfers with 40 young women in grade 9 at one secondary school in Agincourt. During the baseline recruitment activities, conducted February-December 2011, the CCT parent study recruited 1946 young women into the trial, and administered a baseline survey prior to randomly assigning the young women into the CCT intervention or a non-intervention comparison arm. The details of the CCT study procedures relevant to this research are explicated further in the methods section.

5.2 Methods

To develop the scale, we conducted three stages of mixed methods research. We used qualitative research for the first stage to explore meanings of hope for young women in South Africa in order to identify the key elements of hope necessary to develop hope scale items. For the second stage, we collected quantitative survey data in which we administered the hope scale to the participants of the CCT intervention study. The final stage entailed the analytical
procedures to determine the factor structure of the hope scale and assess its validity and reliability in the sample. All stages of the research were approved by the Institutional Review Board at the University of North Carolina-Chapel Hill and the Human Research Ethics Committee of the University of Witwatersrand.

**Development of the Hope Scale**

*Qualitative Data Collection.* We conducted qualitative research with young women to develop the hope scale items. In-depth interviews were completed with 20 young women, ages 14-20, half of whom were enrolled in secondary school and the other half whom had dropped out and never completed their secondary education. We interviewed both in- and out-of-school young women to understand the varied hope meanings and experiences from the perspectives of young women with and without the advantage of attending school. In-school young women had participated in the pilot intervention activities of the parent CCT intervention trial, by having been enrolled in grade nine at a local high school when the pilot took place. Out-of-school young women ages 14-20 living in the same villages in which the in-school young women resided were selected randomly from the AHDSS census. We also randomly selected five parents/guardians of the 20 young women participants to interview and one ninth grade life-orientation teacher at the secondary school where the pilot took place. All interviews followed a semi-structured in-depth interview guide that asked about young women’s (or parents’ and teacher’s perceptions of young women’s) definitions of hope, experiences involving hope, barriers to hope, expectations for their future and thoughts on how hope influences sexual risk behaviors. Two native Shangaan-speaking females from the Agincourt study communities were trained to administer the interviews, and they transcribed and translated the audio-recorded interviews into English.

The first author and the two interviewers, together, read through and discussed the interview data to identify the main ways that the young women, their parents/guardians, and their teacher defined hope and expectations for young women’s futures. Using the findings from this overview
of the interview data, the interviewers conducted two focus-group discussions – one discussion with seven of the ten in-school young women and one discussion with the six out of ten of out-of-school young women – to validate our interpretations of the interview findings regarding young women’s hope and to generate consensus among the focus-group participants regarding their definitions and understandings of hope. We performed content analysis on the in-depth interview and focus group discussion data, using Atlas.ti v6 (Berlin, Scientific Software Development), to inform the study’s definition of hope, the conceptual domains which comprise hope, and the wording of individual hope items.

**Item Development.** After analyzing the interview and focus-group data, we followed four steps informed by DeVellis (2003) to develop the hope scale items and domains. First, we defined hope and relevant hope domains through a synthesis of the hope literature with the findings from the formative research. Through this method, we identified three domains of the hope construct: 1) ‘anticipation of a positive future’ to reflect the importance of consideration of the future as an element of hope (Miller & Powers, 1988); 2) ‘personal motivation to achieve goals’ based on the agency and goal-setting that one needs to be hopeful (Snyder, 2002); and 3) the ‘influence of others on hope’ to capture that hope depends on being interconnected with others (Herth, 1991). These domains closely reflect three of the four key elements that comprise one review of hope (Stoner, 1997); missing was a domain for the need to escape from despair, which was not salient to how young women described hope in the qualitative findings. Second, we generated a list of draft items for each domain developed from young women’s words during the in-depth interviews, modification of existing items from other scales, and original item wordings. Third, we removed items from the draft list, by disregarding items that had ambiguous meanings, did not map onto one of the three developed hope domains, or did not translate well into Shangaan. Finally, we administered the hope items during the CCT baseline survey.
Hope Scale Administration

Participants and Recruitment for the CCT Parent Study. The CCT intervention study randomly selected households in which young women ages 13-20 resided using the AHDSS census data. From a selected household, one eligible young woman was invited to participate in the intervention study. To be eligible, the young women had to live in one of the Agincourt study communities, be currently enrolled in grades 8-11 at a secondary school in Agincourt, be willing to provide consent for participation, have a parent/guardian willing to give consent to the study, plan to live in the study community for at least three years, be literate in order to complete the survey, and have the documentation required to open a bank account to receive the intervention’s cash transfer. Young women ages 13-17 completed informed assent and parents/guardians also consented to their daughter’s participation in the study, while young women ages 18-20 provided informed consent for their own participation.

CCT Survey Data Collection. The CCT baseline survey data – used in this research to administer the hope scale – were collected between February-December 2011 in 24 Agincourt communities. The response rate for the survey was approximately 97%. The baseline survey contained 14 modules, including general household information, education, sexual partnerships, health and fertility, consumption, relationship beliefs, intimate partner violence, employment and finance, HIV knowledge, family support, condom-use self-efficacy, mental health, hope, and friendships. Trained female survey interviewers from the Agincourt communities administered the surveys using ACASI. Young women had the option to complete the survey in either English or Shangaan. After completing the survey in a private location, young women were randomly assigned to the intervention or comparison arm of the CCT intervention.
Analysis Procedures

All analytical procedures to determine the factor structure of the hope scale and validate it with related measures were conducted using SAS version 9.2 (SAS Institute, Inc., Cary, NC). Descriptive statistics, including frequency (n), mean (M), and/or standard deviation (SD), of all the validation variables, and the mean and response distributions, of all the hope items were examined.

Factor Analysis. Using Classical Test Theory, we determined the number of unique dimensions comprising hope and the item distribution using two complimentary factor analytic methods which both use eigenvalues, i.e., the amount of shared variance in a set of items making up a factor, to determine the number of factors to extract. The first method is the scree test, which plots the relative value of the eigenvalues for each factor. Factors that lie above the point where the eigenvalues become horizontal on the plot, i.e., the elbow, are considered to capture substantial variance in the items and thus are candidates for retention in the factor structure. The second method is parallel analysis, which runs simulations on multiple random datasets to generate simulated eigenvalues that can be compared to the actual eigenvalues resulting from the study data. The simulated eigenvalues indicate the amount of random variance in the data that would be expected by chance, and therefore actual eigenvalues that exceed the simulated eigenvalues are candidates for retention in the factor structure (DeVellis, 2003). We conducted exploratory factor analysis using the two factor analytic methods in two random subsamples of the larger baseline dataset, each subsample containing 400 cases, and then in the entire baseline dataset (n = 1946) to test if the three proposed hope domains comprise the factor structure and assess how the items load on the factors.

After determining the number of factors to extract, items for the single resulting factor were retained if the primary factor loadings were greater than 0.70. Using an iterative process, we deleted items from the hope measure that did not meet these criteria until all the retained items
demonstrated acceptable factor loadings. After identifying the items which met these criteria, the internal consistency of the final items for the resulting factor was assessed using Cronbach’s alpha.

**Hope Scale Validation Measures.** For each test of construct validity, we calculated the Pearson correlation with hope. The hypothesized direction and magnitude of each variable’s relationship with hope is shown in Table 5.1. Below is the description of the variables used to establish construct validity with the hope measure.

**Education.** We measured young women’s education using their reported ‘grade’ in school, which ranged from 8\textsuperscript{th} to 11\textsuperscript{th} grade.

**Mental Health.** Young women responded to two mental health variables, ‘anxiety’ and ‘depression’, each of which was modified to include items that had the most relevancy for young South Africans. Anxiety was measured with 14 of the 29 items of the Revised Children’s Manifest Anxiety Scale (RCMAS2) (Reynolds & Richmond, 2008). Example anxiety items included ‘I worry a lot of the time’ and ‘I feel alone even when there are people with me’. Response options were ‘0’ = no and ‘1’=yes. Response to the 14 items were summed and averaged, ranging from ‘0’ for no anxiety and ‘1’ for high anxiety (Cronbach’s $\alpha$=.86).

Depression was measured using the Children’s Depression Inventory (CDI) (Kovacs, 1992), which was modified from 27 to 10 items. Participants were asked to choose among three response categories that most represented them, such as ‘I am sad once in a while’, ‘I am sad many times’, and ‘I am sad all the time’. The responses were scored ‘1’ for the least depressive category, ‘2’ for the middle depressive category, and ‘3’ for the most depressive category. We summed the ten items and then averaged them to make a mean score ranging from ‘1’ for no reports of depression to ‘3’ for high depression. The internal consistency of CDI was borderline acceptable (Cronbach’s $\alpha$=0.65).
**Life stressor variables.** To assess whether a mother or father had died in the previous year, the young women were asked whether their mother or father was still alive, and if not when that parent died. Using this information, we created an indicator variable for ‘loss of parent’ (neither mother nor father died in approximately the last year/ at least one parent died in the last year). To assess whether the young woman had ‘moved households’ in the past year, we asked the young women: ‘have you moved households within the last 12 months’ (yes/no).

**Social support variable.** We created a mean score from an index of four questions that asked how often an adult family member: 1) checks that school work is complete; 2) helps with school work; 3) discusses things studied in class; and 4) discusses marks/grades (never, sometimes, always). Scores for ‘family school support’ ranged from 1 (no support on any item) to 3 (full support on all items) and had an internal consistency reliability of $\alpha=0.75$.

**Behavioral health risk variables.** The ‘condom use self-efficacy’ variable was based on six items that were modified from the condom use self-efficacy scale (Barkley Jr & Burns, 2000). Item examples include ‘I can ask a new partner to use condoms’ and ‘I can refuse sex when I don’t have a condom available’. Response categories followed a 3-point Likert scale, ranging from 1=’do not agree at all’ to 3=’agree a lot’. We created a mean score of the six items ranging from 1-3. The condom-use self-efficacy scale had a Cronbach’s alpha of .87 in this sample. To assess if the young women was ‘ever pregnant’, we asked about their pregnancy history – ‘have you ever been pregnant’ (yes/no). For ‘alcohol use’, we asked respondents how often they drink, with responses ranging from never to daily. We collapsed the responses into three categories – never drinkers, rare drinkers (drink once a month or less), and occasional drinkers (more than once a month).
Table 5.1. Direction and magnitude of hypothesized relationships between validation variables and hope

<table>
<thead>
<tr>
<th>Validation Measures</th>
<th>Predicted Direction of Association</th>
<th>Predicted Magnitude of Association</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Mental health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Depression</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Life stressors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of parent(s)</td>
<td>Negative</td>
<td>Moderate</td>
</tr>
<tr>
<td>Moved households</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Social support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family school support</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td><strong>Behavioral risk</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom use self-efficacy</td>
<td>Positive</td>
<td>Small to moderate</td>
</tr>
<tr>
<td>Ever pregnant</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>Negative</td>
<td>Small to moderate</td>
</tr>
</tbody>
</table>

**Missing data analysis.** Four cases were missing every hope item. An additional six cases were missing more than a third of the hope items (at least 9 missing out of 24) along with several other study variables. These ten cases were dropped entirely from the analysis. Less than 1% of the responses on the validation variables and the hope items were missing in the remaining dataset (N=1936). We calculated correlation coefficients, conducted factor analysis, created mean scores for all scale measures and correlated validation constructs with hope on cases with no missing data.

**5.3 Results**

**Description of the sample**

The descriptive statistics for the study sample, including education, mental health, life stressors, social support, and behavioral risks variables are shown in Table 5.2. The age of the young women ranged from 13-20, with a mean of 15.6 years (SD=1.6). About a quarter of the young women were in each grade, 8th-11th. Most of the young women did not report anxiety
(M=0.3, SD=0.3, range 0-1) or depressive symptoms (M=1.3, SD=0.3, range 1-3). A small proportion of the sample had experienced a substantial life stressor in the last year; 5.1% of the young women had lost a parent and 2.3% had moved their household. The average score on the condom-use self-efficacy scale was 1.7 (SD=0.7, range 1-3). Nearly all the young women never drank alcohol (91.3%).

**Development of the Hope Items**

From the formative research, we developed 24 hope items encompassing the three hope domains – eight items for personal motivation to achieve goals (PM1-PM8), ten items for anticipation of a positive future (FA1-FA10), and six items for the influence of others on hope (IO1-IO6). Response options for each item used a 4-point Likert response ranging from ‘1’ for totally disagree to ‘4’ for totally agree. For every hope item, a large majority of the respondents – 75% or more – reported being hopeful (agree) or very hopeful (totally agree) (Table 5.3).
Table 5.2. Descriptive characteristics of the baseline survey sample of 13-20 year old young women in Agincourt, South Africa

<table>
<thead>
<tr>
<th></th>
<th>N (%)</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age in years, mean (sd)</td>
<td>15.6</td>
<td>(1.6)</td>
<td>13-21</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>149 (7.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>387 (19.9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>413 (21.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>431 (22.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>315 (16.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>142 (7.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>75 (3.9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>32 (1.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year in School</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td>470 (24.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 9</td>
<td>523 (26.9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 10</td>
<td>537 (27.6%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 11</td>
<td>415 (21.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mental health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.3 (0.3)</td>
<td></td>
<td>0-1</td>
<td>4</td>
</tr>
<tr>
<td>Depression</td>
<td>1.3 (0.3)</td>
<td></td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td><strong>Life Stressors in Past Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost a parent</td>
<td>98 (5.1%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moved households</td>
<td>45 (2.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family school support</td>
<td>2.3 (0.5)</td>
<td></td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td><strong>Behavioral Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom use self-efficacy</td>
<td>1.7 (0.7)</td>
<td></td>
<td>1-3</td>
<td>22</td>
</tr>
<tr>
<td>Ever pregnant</td>
<td>184 (9.5%)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1764 (91.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occasionally (Once a month or less)</td>
<td>124 (6.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often (More than once a month)</td>
<td>45 (2.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 5.3. Distribution of the hope items

<table>
<thead>
<tr>
<th>Label</th>
<th>Item</th>
<th>Totally disagree (n, %)</th>
<th>Disagree (n, %)</th>
<th>Agree (n, %)</th>
<th>Totally Agree (n, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM1</td>
<td>It is easy for me to set goals.</td>
<td>238 (12.4%)</td>
<td>233 (12.1%)</td>
<td>1017 (52.8%)</td>
<td>439 (22.8%)</td>
</tr>
<tr>
<td>PM2</td>
<td>I know that the future is under my control even if things go wrong.</td>
<td>105 (5.4%)</td>
<td>179 (9.3%)</td>
<td>909 (47.0%)</td>
<td>741 (38.3%)</td>
</tr>
<tr>
<td>PM3</td>
<td>I enjoy thinking about how I am going to achieve what I want in my future.</td>
<td>70 (3.6%)</td>
<td>81 (4.2%)</td>
<td>896 (46.3%)</td>
<td>888 (45.9%)</td>
</tr>
<tr>
<td>PM4</td>
<td>I am the kind of person who makes plans for how to reach my dreams.</td>
<td>65 (3.4%)</td>
<td>121 (6.3%)</td>
<td>924 (47.9%)</td>
<td>819 (42.5%)</td>
</tr>
<tr>
<td>PM5</td>
<td>I can achieve my dreams if I focus on it.</td>
<td>67 (3.5%)</td>
<td>79 (4.1%)</td>
<td>921 (47.6%)</td>
<td>869 (44.9%)</td>
</tr>
<tr>
<td>PM6</td>
<td>I trust that I will achieve the goals that I set for myself.</td>
<td>54 (2.8%)</td>
<td>54 (2.8%)</td>
<td>928 (48.0%)</td>
<td>896 (46.4%)</td>
</tr>
<tr>
<td>PM7</td>
<td>It is easy for me to reach my goals.</td>
<td>50 (2.6%)</td>
<td>88 (4.6%)</td>
<td>1003 (51.9%)</td>
<td>792 (41.0%)</td>
</tr>
<tr>
<td>PM8</td>
<td>I am careful about what I am doing now because it could affect my plans for the future.</td>
<td>103 (5.3%)</td>
<td>192 (9.9%)</td>
<td>918 (47.5%)</td>
<td>720 (37.3%)</td>
</tr>
<tr>
<td>FA1</td>
<td>I believe that good things happen to me.</td>
<td>113 (5.8%)</td>
<td>120 (6.2%)</td>
<td>901 (46.6%)</td>
<td>800 (41.4%)</td>
</tr>
<tr>
<td>FA2</td>
<td>I do not worry too much about problems now because I believe my life will be better in the future.</td>
<td>93 (4.8%)</td>
<td>92 (4.8%)</td>
<td>912 (47.2%)</td>
<td>837 (43.2%)</td>
</tr>
<tr>
<td>FA3</td>
<td>Even when I fail, I keep trying because I know it will be better next time.</td>
<td>65 (3.4%)</td>
<td>79 (4.1%)</td>
<td>967 (50.0%)</td>
<td>823 (42.6%)</td>
</tr>
<tr>
<td>FA4</td>
<td>There is nothing that can get in my way of having a good future.</td>
<td>71 (3.7%)</td>
<td>83 (4.3%)</td>
<td>838 (43.3%)</td>
<td>944 (48.8%)</td>
</tr>
<tr>
<td>FA5</td>
<td>I trust that I will be able to do everything that I want to do in my future.</td>
<td>48 (2.5%)</td>
<td>53 (2.7%)</td>
<td>875 (45.3%)</td>
<td>957 (49.5%)</td>
</tr>
<tr>
<td>FA6</td>
<td>I have more confidence in my future success than others my age.</td>
<td>43 (2.2%)</td>
<td>83 (4.3%)</td>
<td>917 (47.5%)</td>
<td>888 (46.0%)</td>
</tr>
<tr>
<td>FA7</td>
<td>I believe that the things I am doing now are preparing me for what I want in the future.</td>
<td>48 (2.5%)</td>
<td>65 (3.4%)</td>
<td>906 (46.9%)</td>
<td>911 (47.2%)</td>
</tr>
<tr>
<td>FA8</td>
<td>I know that my life will be better in the future.</td>
<td>36 (1.9%)</td>
<td>59 (3.1%)</td>
<td>875 (45.2%)</td>
<td>965 (49.9%)</td>
</tr>
<tr>
<td>FA9</td>
<td>I believe that I will be successful even when there are difficulties in my life now.</td>
<td>49 (2.5%)</td>
<td>61 (3.2%)</td>
<td>930 (48.0%)</td>
<td>896 (46.3%)</td>
</tr>
<tr>
<td>FA10</td>
<td>I have faith that I will be successful.</td>
<td>39 (2.0%)</td>
<td>44 (2.3%)</td>
<td>918 (47.5%)</td>
<td>720 (37.3%)</td>
</tr>
</tbody>
</table>

**Influence of others on hope**

| IO1 | My parents or guardians support me to achieve my goals. | 84 (4.3%) | 80 (4.1%) | 961 (49.7%) | 809 (41.8%) |
| IO2 | I feel comfortable asking others for help when I need it to reach a goal. | 68 (3.5%) | 101 (5.2%) | 1009 (52.3%) | 753 (39.0%) |
| IO3 | I will be successful because I know other people like me who have been successful. | 48 (2.5%) | 66 (3.4%) | 906 (46.9%) | 914 (47.3%) |
| IO4 | My friends and I share the dream to have a successful future. | 83 (4.3%) | 154 (8.0%) | 927 (48.0%) | 769 (39.8%) |
| IO5 | The important people in my life tell me that I will have a successful life. | 51 (2.6%) | 42 (2.2%) | 905 (46.8%) | 938 (48.5%) |
| IO6 | There are people who can help me when I need guidance to achieve something important to me. | 52 (2.7%) | 66 (3.4%) | 988 (51.1%) | 829 (42.8%) |

*PM=personal motivation to achieve goals; FA=future anticipation; IO=influence of others*
Factor structure

The eigenvalues comparing the study sample to the simulated datasets created through the parallel analysis are shown in Figure 5.1. The results of the scree test revealed one elbow, indicating a one-factor solution. The parallel analysis suggested that there were two factors with actual eigenvalues larger than the simulated eigenvalues, although the actual eigenvalue for the second factor was marginally above its simulated eigenvalue (1.7 vs. 1.5 respectively). Further, the items that primarily loaded on both the first and second factor represented items from each of the three proposed hope domains indicating that there was not a conceptual explanation distinguishing the factors. Because of the evidence – in the two n=400 samples and the entire sample – provided by the scree plot, the parallel analysis, and the lack of conceptual distinction between the items that loaded on the first and second factor, we adopted the more parsimonious and plausible single-factor solution. Through an iterative process of excluding items that loaded below 0.70 on the single factor, we reduced the number of items to 15. Cronbach’s alpha, or the internal consistency reliability for the 15-item hope scale was high at 0.95. For the sake of scale parsimony, coupled with conservation of high reliability, we reduced the final hope measure to 12 items, while Cronbach’s alpha was maintained at 0.95.
Figure 5.1. Eigenvalues for the young women’s sample data and the 100 simulated datasets

The final single factor solution, retaining 12 of the original 24 items (PM5-PM7, FA5-FA10, O3, O5, O6), accounted for 67.1% of the total variance. This factor structure did not support the initial construction of the hope scale divided into three domains. Instead, a single dimension emerged (Table 5.4).
Table 5.4. Factor loadings for hope – the final single-factor solution

<table>
<thead>
<tr>
<th>Label</th>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA8</td>
<td>I know that my life will be better in the future</td>
<td>0.887</td>
</tr>
<tr>
<td>IO5</td>
<td>The important people in my life tell me that I will have a successful life</td>
<td>0.852</td>
</tr>
<tr>
<td>PM6</td>
<td>I can achieve my dreams if I focus on them</td>
<td>0.840</td>
</tr>
<tr>
<td>FA10</td>
<td>I have faith that I will be successful</td>
<td>0.835</td>
</tr>
<tr>
<td>FA9</td>
<td>I believe that I will be successful even when there are difficulties in my life now</td>
<td>0.828</td>
</tr>
<tr>
<td>FA7</td>
<td>I believe that the things I am doing now are preparing me for what I want in the future</td>
<td>0.813</td>
</tr>
<tr>
<td>PM5</td>
<td>I can achieve my dreams if I focus on them</td>
<td>0.813</td>
</tr>
<tr>
<td>FA5</td>
<td>I trust that I will be able to do everything I want to do in my future</td>
<td>0.807</td>
</tr>
<tr>
<td>IO6</td>
<td>There are people who can help me when I need guidance to achieve something important to me</td>
<td>0.801</td>
</tr>
<tr>
<td>IO3</td>
<td>I will be successful because I know other people like me whom have been successful</td>
<td>0.793</td>
</tr>
<tr>
<td>FA6</td>
<td>I have more confidence in my future success than others my age</td>
<td>0.786</td>
</tr>
<tr>
<td>PM7</td>
<td>It is easy for me to reach my goals</td>
<td>0.766</td>
</tr>
</tbody>
</table>

Construct Validity Testing

For testing construct validity, we created a mean hope score from the 12 final items ranging from ‘1’ for total disagreement to ‘4’ for total agreement with all the hope items. Young women reported high levels of hope; the mean hope score was 3.4 (SD=0.6). The Pearson correlations of the key variables to assess the construct validity with the mean hope score are shown in Table 5.5.

We expected a positive correlation between grade and hope, and young women who were in a higher grade had significantly more hope (r=0.09; p<.001). Our hypotheses for the associations of hope with mental health and social support variables were confirmed. Anxiety (r= -0.15; p<.001) and depression (r=-0.34; p<.001) were negatively associated with hope. Family school support was positively associated with hope (r=.11; p<.001). The relationship of hope with the behavioral risk variables partially followed the hypothesized directions. As predicted, condom use self-efficacy was positively associated with hope (r=0.15; p<.001), but the strength of the relationship
was stronger than expected. Having ever been pregnant was negatively associated with hope \( (r=-0.13; p<.001) \) as expected. We predicted that alcohol use would be associated with significantly less hope, but that relationship was not confirmed in our sample \( (r = -.04; p = .37) \). Although we hypothesized that life stressors would be negatively correlated with hope, no relationship was found. Loss of a parent \( (r = .02; p = .54) \) and household move in the last year \( (r = .01; p = .74) \) were not associated significantly with hope.

Table 5.5. Construct validity assessment using Pearson’s correlation with the mean hope score

<table>
<thead>
<tr>
<th>Validation Measures</th>
<th>Correlation with Mean Hope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic</strong></td>
<td></td>
</tr>
<tr>
<td>Grade (+)</td>
<td>0.09***</td>
</tr>
<tr>
<td><strong>Mental health</strong></td>
<td></td>
</tr>
<tr>
<td>Anxiety (--), Depression</td>
<td>-0.15*** -0.34***</td>
</tr>
<tr>
<td><strong>Life stressors</strong></td>
<td></td>
</tr>
<tr>
<td>Loss of parent(s) (--),</td>
<td>0.02</td>
</tr>
<tr>
<td>Household move (-)</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Social support</strong></td>
<td></td>
</tr>
<tr>
<td>Family school support (+)</td>
<td>0.11***</td>
</tr>
<tr>
<td><strong>Behavioral risk</strong></td>
<td></td>
</tr>
<tr>
<td>Condom use self-efficacy (+), Ever pregnant (-), Alcohol use (-)</td>
<td>0.15*** -0.13*** -0.04</td>
</tr>
</tbody>
</table>

*The predicted direction and strength of the correlation of the validation variable with hope is depicted in the parentheses in Column 1.

* \( p<.05; ** p<.01; *** p<.001 \)

### 5.4 Discussion

This study provides a tool, a measure of hope, which is the first to be developed specifically for use in a high HIV prevalence setting and validated in a sample of young women in rural South Africa. Overall, the hope measure we created was found to have excellent reliability, to show promising preliminary indications of validity, and to explain an adequate amount of the total variance among the hope items in a sample of rural South African young women in secondary school.
In the qualitative interviews, young women discussed overlapping themes regarding meanings and experiences with hope. Synthesizing the interview findings together with the review of the hope theory literature, we hypothesized three hope domains that informed the development of scale items. Each of the three proposed domains built on work done by previous hope researchers – e.g., personal motivation to achieve goals was similar to an ‘agency’ domain (Snyder, 2002); anticipation of a positive future was similar to a ‘future anticipation’ domain (Miller & Powers, 1988); and influence of others on hope was similar to ‘interconnectedness’ (Herth, 1991) and ‘interpersonal hope’ (Stoner, 1997). The uni-dimensional factor structure of hope that emerged from the factor analysis on the sample of young women did not confirm these three domains. Although the three hypothesized domains were not reflected in the measure, items that represented personal motivation, future anticipation, and influence of others were retained in the final scale -- three ‘personal motivation’, six ‘future anticipation’, and three ‘influence of others’ items. Even if the items did not factor into three separate domains, together they were an integral part of our conceptualization of hope and loaded substantially onto the construct in its uni-dimensional form.

There are two likely explanations for why the hope scale only measured a single, uni-dimensional attribute of hope. First, the three hypothesized domains and the accompanying items may not capture distinct enough aspects of young women’s hope to comprise separate, unique dimensions in the scale structure, suggesting that the lack of multidimensional factor structure results from poor item selection to represent the domains. Second, it is possible that even though adolescent young women in rural South Africa qualitatively discussed experiences related to the various aspects of hope found in the literature, on a survey the participants may not differentiate between the three dimensions – reflecting elements of personal motivation, future anticipation, and influence of others – as separate components of hope. This explanation suggests that the distinctions that hope theory has made to identify unique facets of the construct may not resonate
with young women in South Africa. Further research is necessary to explore if the scale items need to be clarified to measure distinct aspects of the three hypothesized domains and to assess if young South African women envision hope as a single attribute.

We found promising preliminary support for the construct validity of the hope scale demonstrated by the pattern of correlations between hope and the various correlates, socio-demographic, mental health, life stressors, social support and behavioral risk variables. Generally, hope’s predicted relationships with each of the construct validity variables may have been weakened as a result of how much hope the young women reported. The high reports of hope suggests that there was limited variance to support substantial associations, especially with those validation variables that also demonstrate little variance in this sample. Further descriptions below address the nature of the specific relationship of hope with each validation variable and the implications for validity of the hope scale.

Convergent validity was supported by the direction of the observed correlations of the hope scale negatively with mental health (anxiety and depression) and positively with grade and family school support; with all relationships significant (p<.001). Depression, in particular, is a construct that has been shown to be associated negatively with hope in numerous studies, so it is not surprising that the relationship is confirmed here. The magnitude of hope’s correlation with anxiety and depression was not as high as in other settings, which ranged from -0.10 to -0.15 in our study, but from -0.40 to -0.60 elsewhere (Snyder et al., 1991). The magnitude of the correlation in our study may be limited by the lack of validity testing of the RCMAS2 and CDI scales with young women in Agincourt, and in the case of CDI, the borderline reliability (α=0.65). For these mental health variables, the magnitude of their relationship with hope also was likely limited due to the high levels of reported hope. Hope’s relationship with grade in school was also very significant (p <.001) but the magnitude of the relationship was not very
strong (r=.09); the relationship might not be linear due to the skewed distribution of hope and potential differences in hope that do not change incrementally across each higher grade in school.

With regards to behavioral risk variables, our findings support their convergent validity with hope for behaviors related to sexual risk, such as ever having been pregnant and condom-use self-efficacy, but not for behaviors related to alcohol use. Very few participants (2.3%) drank alcohol more than once a month and generally black female adolescents in South Africa have low rates of alcohol consumption compared to males and to other racial groups (Fisher, Parry, Evans, Muller, & Lombard, 2003). We did not measure other drug-use variables that have a stronger association than alcohol with future expectations (Leslie, 2010), regardless, the prevalence of young women using drugs in this setting is likely very low and therefore they might not demonstrate much covariance with hope.

The life stressor variables did not support convergent validity with hope. Household move and loss of a parent did not correlate negatively with hope as predicted. Notably, neither household move (5.1%) nor death of a parent (2.3%) was very prevalent in the sample, which lessens the likelihood of substantial associations with hope. It is possible that a single-item indicator of household move did not capture whether moving had a positive, neutral, or negative impact on participants, depending on the circumstances of the move, and without this additional information it is difficult to theorize how moving would affect a young woman’s hope. How people handle a death of a parent is influenced by the social context. For example, for some South Africans, it is not culturally appropriate to mourn a death in the family after the burial (Demmer, 2006). Although people likely need greater time to adjust to such a personal loss, this short public grieving period proscribed by cultural norms may alter how young women who had lost a parent answer questions on the survey, especially regarding hope. Further, the stressful effect of losing a parent may be mitigated if the young woman did not live together with that parent.
Limitations in the study have the potential to weaken the findings. First, due to time and resource constraints, we were not able to pilot test or conduct cognitive interviews using the 24-item draft hope scale before administering it in the baseline CCT survey. We minimized the impact of this limitation by working extensively with South African female staff from the same Agincourt communities as young women in the sample to ensure translatability, clarity, and relevance. The hope scale was developed to be administered either in English or in Shangaan, and went through multiple rounds of translation and back-translation to ensure the appropriate wording of items in both languages. Second, there was very little variation in the hope scale in this population. For individual hope items, at least 75% of the sample endorsed that they agreed or totally agreed with all hope items, and on the majority of hope items this agreement extended above 90%. It is possible that the hope scale is not sensitive enough to differentiate the range of hope at higher – more hopeful – levels of the construct, and that the items and response categories need to be refined. Our scale may have adequately captured the extent of hope in the sample if South African young women who are enrolled in school are generally a hopeful population. Also, people have been shown to rate themselves highly on measures of subjective well-being in six western countries (Cummins, 1995; Cummins & Nistico, 2002), so the high levels of hope in our sample may reflect this positive cognitive bias. In addition, the high levels of reported hope may have been affected by the selection of participants for the CCT parent study. In order for young women to be eligible for the study, they needed to be enrolled in secondary school which fosters hope by increasing opportunities for the future. Young women who are not in school are more likely to have fewer future opportunities resulting in less hope. In addition, randomization into the conditional cash transfer or comparison arm occurred immediately after survey completion; young women participants may have reported high hope as a result of anticipation of joining the conditional cash transfer study arm. Third, our study was not designed to measure the stability of hope over time and further research is needed to assess whether the measure of hope captures a temporary emotional state or a more permanent personality trait. Finally, we developed the hope
scale specifically for use with young women enrolled in the conditional cash transfer intervention study, focusing on their experiences in rural South Africa while in secondary school. In broadening the applicability of the hope scale, it needs to be tested and validated in other settings and populations, such as with young men, urban residents, youth who are not in school and adults who have developed beyond adolescence.

Despite these limitations, this study presents a promising measure to assess hope among young women in South Africa. This hope scale has the potential to identify how aspects of the structural environment may affect the behaviors of young women that impact their risk of HIV. Future longitudinal research needs to examine whether and which environmental factors influence hope and determine if hope mediates associations between environmental factors and HIV-related risk behaviors. Unlike other measures of hope, this has the advantage of being developed specifically for use in a high-prevalence HIV setting with a population that is at high risk for HIV infection.
6.1 Introduction

Background

Adolescence is a critical period when young people experiment with risk and develop patterns of behavior (Call et al., 2002). The repercussions of sexual experimentation are more pronounced in settings with a generalized HIV epidemic. The high chance of engaging in sexual activities with an HIV positive partner increases the likelihood of acquiring HIV. This is evident by the high prevalence of HIV in South Africa where 16% of adults ages 15-49 are infected (UNAIDS, 2012). Young women in South Africa are at especially high risk. The HIV prevalence among women ages 15-24 is approximately 14% compared to 4% in men the same age (International Group on Analysis of Trends in HIV Prevalence and Behaviors in Young People in Countries Most Affected by HIV, 2010). As young women transition into adulthood their risk of HIV rises to nearly a third among women ages 20-34, much higher than other age and gender cohorts (Shisana, 2009). Numerous risk factors explain young women’s increased likelihood of HIV infection in South Africa, including biological susceptibility, and individual, interpersonal and contextual risks (Bouare, 2010; Eaton, Flisher, & Aarú, 2003 2003; Pettifor et al., 2005).

Psychosocial factors, such as hope, are the individual-level psychological traits that are developed through interaction with the social environment (Krieger, 2001; Poundstone et al., 2004). In this high HIV prevalence setting, little is known about the psychosocial factors that are associated with South African young women’s sexual risk behaviors that put them at risk for HIV infection.
During adolescence, youth begin to take risks with more frequency than they would as children. Meanwhile, youth are learning to judge their risk behavior against the possible outcomes resulting from enacting that behavior. For some adolescents, especially those who believe their future holds little promise, they may feel like they have little reason or hope to try to reduce risk even if they do understand the consequences (Fischhoff et al., 2000). Part of the developmental process of learning to navigate risks and to plan for the future entails building individual psychosocial strengths. For example, expectations for the future such as hope are developed during adolescence (Harris et al., 2002). Broadly, hope is the wish or desire to have a positive future. It serves as a powerful psychosocial asset that can help youth think ahead to their futures and avoid risks when confronted with a challenging environment (Snyder et al., 2000; Schroeder, & Adams III, 2000; Snyder et al., 1996).

In relation to the HIV epidemic, hope has been theorized as a mechanism through which the risk environment influences HIV-related sexual risk behaviors (Barnett, 2008a; Bernays et al., 2007). The risk environment related to HIV is comprised of any risk factor occurring beyond the level of the individual that increases HIV transmission (Rhodes & Simic, 2005). By definition, psychosocial factors such as hope are influenced by the environment (Martikainen et al., 2002). Protective approaches that foster psychosocial assets, such as building hope so that youth can avoid risk behaviors and their consequences, are unlikely to be effective if they only focus on the individual without consideration of the surrounding risk environment (Bogenschneider, 1996). Meanwhile, greater hope has the potential to help disadvantaged youth navigate high risk environments in order to avoid poor health outcomes caused by risk behaviors.

The purpose of the current study is to explore hope as a psychosocial strength for young women in South Africa by testing: how hope is associated with the risk environment and with sexual risk behaviors; and if hope mediates the relationship between the risk environment and sexual risk behaviors. We use cross-sectional data collected at baseline from an HIV prevention
intervention study that assesses the impact of conditional cash transfers for school attendance on the risk of HIV infection. The parent trial is being conducted in an impoverished area of rural South Africa among young women ages 13-20 who are currently enrolled in school (Pettifor et al., in preparation).

*The risk environment, hope, and sexual risk behaviors*

The research questions in this study are informed by a Hope and HIV prevention framework that conceptualizes hope as an essential psychosocial factor through which the effects of the risk environment act on individual sexual risk behaviors (Barnett, 2007; Bernays et al., 2007). The risk environment broadly refers to any determinant beyond the individual that increases HIV risk, including physical, social, economic and political factors (Rhodes & Simic, 2005). Living in an adverse risk environment is likely to reduce how individuals perceive their future opportunities, thus creating a sense of hopelessness (Steyn et al., 2010 2010). Meanwhile, hopelessness may make future goals, which might otherwise provide motivation to avoid HIV-related risk behaviors, seem less achievable (Barnett & Weston, 2008). Therefore, the relationship between the risk environment and sexual risk behaviors may be mediated by hope.

As calls for structural interventions to reduce HIV risk increase (Auerbach et al., 2011; Gupta, Parkhurst, Ogden, Aggleton, & Mahal, 2008), explanations of how structural changes in the risk environment influence individual behavior are required. Hope has the potential to explain how structural interventions reduce risk for HIV in settings such as South Africa. However, the role of hope in elucidating how the risk environment has an effect on sexual risk behaviors has not been well studied with regards to the HIV epidemic in South Africa.

*Hope and future expectations.* Hope is a psychosocial trait that is broadly considered a positive attribute that affects behavioral self-regulation (Aspinwall & Leaf, 2002). Hope, in part, requires having positive expectations for the future and desiring that future. Yet hope is not simply future
expectations. Hope captures the desire for less probable future outcomes, especially in the face of significant adversity in the risk environment, which can reduce the opportunities to achieve future goals (Bruininks & Malle, 2005; Roth & Hammelstein, 2007). Perception of a bleak future may lead to less fortitude and strength when undergoing challenges and difficulties (Peterson & Barrett, 1987). Research associating hope with risk behaviors has been conducted primarily with participants living in stressful or disadvantaged environments, such as among inner-city youth (Bolland, 2003; Canty-Mitchell, 2007; Dubow et al., 2001 & Ippolito, 2001), adolescents in foster care (Cabrera, Auslander, & Polgar, 2009), or rural low-income women (Kelsey et al., 2011), suggesting that hope may also have relevancy for young women living in resource-poor settings in rural South Africa.

Relationship between household risk environment and hope. Research suggests that an adverse risk environment diminishes hope. For example, South African youth are faced with numerous social problems – such as crime, violence, unemployment, poverty, and HIV – that have the potential to reduce hope for the future (Steyn et al., 2010). For the purposes of this study, we use a definition of the risk environment developed to understand how the risk environment affects HIV transmission. This HIV-related risk environment is comprised of two levels: 1) microenvironments in which the risk is more proximal to an individual such as household factors, school context, and peer norms; and 2) macro environments in which the risk is more distal such as gender inequality, government policies, and unemployment-levels (Rhodes & Simic, 2005).

Because our study was conducted in one local setting, we explored the risk in the microenvironment where there was more variation among the young women participants than at the macro level. We define the risk environment based on factors in the microenvironment and, specifically, on characteristics of the household risk environment in which young women live.

The household risk environment, as conceived in this study, is comprised of two subsets of variables. The first subset, household demographics, are the set of variables that capture various
characteristics of the household members and aspects of the structure of the household that may increase HIV risk. Households and the members that make up the household act as an important safety net (Wittenberg & Collinson, 2007) because families provide support to vulnerable youth (Foster, 2004). Constructs characterizing the household demographics that may suggest an adverse risk environment for young women include: a larger household size (Madhavan & Townsend, 2007); more young people in the household and fewer of the eligible young people enrolled in school (Madhavan & Schatz, 2007); households headed by females and uneven gender distribution in the household (Harris et al., 2002; Madhavan & Schatz, 2007; Madhavan & Townsend, 2007); and less chance to interact with a biological parent by not living together in the same household (Bishai et al., 2003; Harris et al., 2002).

For the second subset of variables characterizing the household risk environment, we measured household socio-economic status (SES) using indicators of household food security, consumption, and education levels. In the US, SES has been negatively associated with young people’s hopelessness (Nguyen et al., 2012). In a nationally representative study of South Africans, individuals who rated their perceived income higher relative to others reported the highest hope and those who reported their perceived income lower relative to others, reported the lowest hope (Boyce & Harris, 2012).

Relationship between hope and sexual risk behaviors. The Hope and HIV Prevention framework also links hope to sexual risk behaviors. Hope potentially influences sexual risk behaviors by providing the motivation to protect oneself in order to reach desired future goals. Hope is related to numerous protective health behaviors, including more exercise (Snyder et al., 1991), better nutrition, less substance use (Mahat & Scoloveno, 2001; Mahat et al., 2002 2002), and adherence to medication (Moon, 2001). College students with a positive future orientation were less likely to be sexually active and to have many sexual partners (Rothspan & Read, 1996). Future time orientation scores were related to greater condom use among African-Americans (Burns &
Dillon, 2005). On the contrary, perceived risk of early death, a measure of hopelessness, was associated with an HIV diagnosis in young adulthood (Borowsky, Ireland, & Resnick, 2009 2009).

Relationship between the risk environment and sexual risk behaviors. A complex set of factors in the risk environment can influence the chances of engaging in risk behaviors (Poundstone et al., 2004). For young women in South Africa, aspects of the household, school-environment, and community have been conceptualized as affecting young women’s sexual risk behaviors (Hallman, 2005). Within the household both those living in the household and the resources available have the potential to impact on the risk behavior of young women (Hallman, 2005). Poverty as a facet of the risk environment has been linked to the increased prevalence of HIV (Tladi, 2007) and sexual risk behaviors, such as ever having sex (Hallman, 2005). However, increased household education and a stable family structure can help create environments that are conducive to young women delaying their sexual debut (Oman, Vesely, & Aspy, 2005; Santelli, Lowry, Brener, & Robin, 2000; Vesely et al., 2004). Households in particular, because of the protective role of the family, have the potential to play an important role in the risk environments of young people, thus helping to protect against sexual risk behaviors (Bell et al., 2008).

Study aims and hypotheses

The primary study aims were to: 1) determine if the household risk environment is associated with hope and if hope is associated with sexual risk behavior; and 2) explore hope as a mediator of relationship between the household risk environment and sexual risk behaviors. This study tests five hypotheses: 1) young women living in households with demographic characteristics that suggest an adverse household risk environment – e.g., a greater percentage of children, female-headed household, or a younger average age for the household residents – will be less likely to report high hope for their future; 2) young women living in lower SES households – i.e., less consumption, more food insecurity, and lower parent/guardian education – will be less likely to
report high hope for their future; 3) high hope will be associated with less sexual risk behavior; 4) both lower household SES and household demographics that suggest a more adverse risk environment will be associated with more sexual risk behavior; and 5) the negative relationship between the household risk environment and sexual risk behaviors will be mediated by hope, such that improvements to the household risk environment will lead to higher hope, which in turn will lead to less sexual risk behavior.

6.2 Methods

Sample and procedures

The data were collected at baseline from an HIV prevention trial conducted in rural Agincourt, Mpumalanga, South Africa with young women in secondary school (grades 8-11) ages 13-20 years. The parent study tests how the provision of cash transfers to young women, conditional on their school attendance, affects their risk of HIV infection. Young women were randomly assigned to receive a monthly conditional cash transfer or to a non-intervention comparison group. Between March 2011 and May 2012, we identified potential participants through a census list of all females ages 13-20 residing in Agincourt who had been enumerated by the annual Agincourt Health and Demographic Surveillance Survey (Kahn et al., 2007) and through visits to secondary schools in Agincourt in which female students filled out a basic household and demographic information sheet. Study staff conducted a household recruitment visit to confirm that an eligible young woman resided in the household according to the following eligibility criteria: a young woman ages 13-20 lived in the household, the young woman was currently enrolled in Grades 8-11 at a secondary school in Agincourt, she planned to live in the study community for the next three years, her parent or guardian would give consent for the young woman to participate and the young woman would give her assent, the young woman was literate in order to read the study surveys, no other young women living in the same household
were already enrolled in the study, and the parent/guardian and the young woman had the documentation to open a bank account to receive the intervention’s cash transfer.

Once eligibility was established and consent obtained, the parent/guardian was invited to complete the household baseline survey and the young woman to participate in the young women’s baseline survey. The household survey was developed by combining elements of the South African National Income Dynamic Survey (NIDS 2012) and the World Bank Living Standards Measurement Survey (Grosh & Glewwe, 1998) to examine general household conditions. It included questions about the members of the household, food and non-food consumption and expenditures, loans and transfers, and negative and positive household events. Study interviewers administered the household surveys to the parent/guardian using a Computer-Assisted Survey Instrument (CASI). The young women’s survey included questions related to socio-demographic characteristics, schooling, sex partners and related risk behaviors, gender roles in relationships, friends, and psychological well-being including hope. Due to the sensitive nature of the questions for the young women, the surveys were conducted separately in private locations using Audio Computer-Assisted Survey Instrument (ACASI). After completing the baseline survey, young women were randomly assigned to the CCT intervention or comparison arm. This study used an analytic sample comprised of 2135 women who had both completed household surveys and young women’s baseline surveys (or approximately 91% of those invited to participate in the study).

This study was approved by the Institutional Review Board at the University of North Carolina-Chapel Hill and the University of Witwatersrand Human Research Ethics Committee.

Study measures

Hope. We used a 12-item uni-dimensional measure of ‘hope’ that assesses anticipation of a positive future (e.g., “I know that my life will be better in the future”), motivation for goal
achievement (e.g., “I can achieve my dreams if I focus on them”), and the influence of others on hope (e.g. “the important people in my life tell me that I will have a successful life”) (Abler et al., in preparation). Responses ranged from 1 (“totally disagree”) to 4 (“totally agree”), and the item values were averaged to create a summary hope score with higher scores indicating more hope. As a result of the high reports of hope in the sample that skewed the data, we dichotomized the hope variable into low and high hope. The cut-point was set at three or greater for high hope as any young woman who scored less than three on average indicated some disagreement about being hopeful. Cronbach’s alpha for the hope scale was 0.95.

*Household demographics.* Household survey respondents were asked several questions about the membership, composition and characteristics of all the people living in the household, including the household survey respondent and the young woman interviewed in the young woman’s survey. ‘*Household size*’ was measured from the number of people living in the young woman’s home. ‘*Number of youth in school*’ was calculated from the number of youth between the ages of 5-24 who were enrolled in school. ‘*Percent enrolled in school*’ was determined from taking the number of youth in school and dividing that by the total number of youth ages 5-24. The gender of the household survey respondent was assessed to determine a ‘*female parent/guardian*’ (yes/no). The proportion of resident females out of the total household size was calculated to create the measure of ‘*percent of female residents*’. ‘*Biological parent*’ (yes/no) was indicated if the young woman’s biological mother, father, or both resided in the household. We averaged the ages of all household residents to create the ‘*average household age*’ variable.

*Household SES.* In order to characterize multiple dimensions of household SES that have the potential to affect young women’s sexual risk behaviors, as suggested by Wojcicki et al. (Wojcicki, 2005), we measured three aspects of SES: 1) household consumption, 2) parent education, and 3) food insecurity.
Household consumption. To strengthen the assessment of the household wealth we used a measure of ‘household consumption’ which accounts for the current monetary value of reported household food and non-food consumption and spending (Rodrigo & Rajapakse, 2010; Wagstaff & Watanabe, 2003). Household asset indices are more commonly used to capture household wealth, but consumption measures are preferred because they are considered a better indicator of current income (Filmer & Scott, 2008). The overall household consumption level was calculated by summing the spending and production value of over 100 food and non-food items in South African Rands ($1 equals approximately R8) consumed in the previous 30 days (Thirumurthy et al., in preparation). We used a per capita measure by dividing the calculation of household consumption by the number of people in the house. To account for the skewed reports of household consumption especially at higher levels of the range, we log-transformed the per capita household consumption variable for use in the analyses.

Parent/guardian education. To assess the educational dimension of household SES, we also included a measure of the highest level of education that the household survey respondent attained. Response options for the ‘parent/guardian education’ item asked respondents to indicate the highest grade they finished, ranging from “0” (none) to “15” (completed tertiary schooling). These responses were collapsed into three categories based on previous research (Hargreaves et al., 2002): no education, primary schooling (through completion of grade 6), and secondary schooling (ranging from completion of grade 7 through completion of tertiary education).

Food insecurity. Three items were used to identify households which reported experiencing ‘food insecurity’ in the last 30 days. The questions asked how often there was no food in the household because there was not enough money to buy food, any member of the household went to bed hungry because there was not enough food, and any member of the household went a whole day without eating because there was not enough food. The four responses were “1” never, “2” rarely (1-2 times), “3” sometimes (3-10 times) or “4” often (more than 10 times). We created
a dichotomous measure of food insecurity to identify households that reported no food insecurity (answering ‘never’ on all three items) or reported any food insecurity.

*Young women’s sexual risk behavior.* We collected data about ‘sexual debut’ (ever having had vaginal or anal sex/never having had vaginal or anal sex) from the entire young women’s sample. Among those who reported having ever been sexually active (n=637), we created dichotomous measures for ‘early sexual debut’ (less than 15 years old/15 years or older) based on age cut-points set in the literature (Pettifor et al., 2004 Shiboski, & Padian, 2004) and for young women who reported ‘non-condom use’ at last sex with most recent partner (yes/no).

*Young women’s characteristics.* The parent study enrolled young women attending secondary school from one large rural area to participate in the study. All participants in the young women’s survey were female, black, enrolled in secondary school, and lived in a rural community. Therefore, the selection criteria for the study participants resulted in a demographically homogenous sample. Young women reported their ‘age’ in years.

*Analysis*

All statistical analyses were conducted using SAS version 9.2 (SAS Institute, Cary, NC). Descriptive statistics were used to describe the study sample, including the young women’s household risk environment, sexual risk behaviors, and hope. Then, we addressed the primary aim of the study by exploring the relationships with hope in order to test hypotheses 1-3. First, we conducted bivariate analyses to examine the association between the household risk environment and hope using chi square and t-tests. Second, we conducted logistic regression to explore the relationship between hope and sexual risk behaviors by calculating the unadjusted and age-adjusted odds ratios of the sexual risk behaviors. Multicollinearity was assessed by calculating the variance inflation factors; all values were found to be less than 5, indicating a lack of multicollinearity (Allison, 1999).
To assess the secondary aim of the study to determine if hope mediates the relationship between the risk environment and sexual risk behaviors, we tested hypotheses 4-5. In the cases where there was a significant association between a measure of the household risk environment and a sexual risk behavior, we tested whether hope mediated this relationship using age-adjusted multivariate logistic regression. Four criteria were used to assess the mediation effects of hope: 1) the household risk environment was significantly associated with sexual risk behavior (c path); 2) the household risk environment was significantly associated with hope (a path); 3) hope was significantly associated with sexual risk behavior while controlling for the household risk environment (b path); and 4) the effect of household risk environment on sexual risk behavior was significantly reduced when hope was added to the model (c’ path) (Baron & Kenny, 1986; Frazier, Tix, & Barron, 2004). The significance of the mediated effect of hope on the relationship between the household risk environment and sexual risk behavior was calculated using the Sobel test (Preacher & Hayes, 2004). To create a uniform scale with which to compare the logistic regression results across models to assess mediation, we standardized each of the logistic regression coefficients by multiplying them by the standard deviation of the independent variable and then dividing them by the standard deviation of the outcome variable in the logistic regression model (MacKinnon & Dwyer, 1993).

Among cases with complete household and young women’s surveys, data were missing for less than 4% on all variables. We used multiple imputation procedures to impute data for variables missing data, developing estimates and standard errors for five imputed datasets (Ali & Siddiqui, 2000). We did not observe any noticeable differences in the conclusions drawn from associations calculated from the original and imputed data, and therefore report results from the non-imputed data.
6.3 Results

Table 6.1 provides an overview of the sample characteristics for young women and their households.

Sample characteristics

Young women’s characteristics: The young women’s ages ranged from 13-20 (mean [SD] = 15.7 [1.7]). Over a quarter of the young women had a sexual debut (29.9%). Among the sexually active young women (n=637), 26.8% had an early sexual debut before they were 15 years old and 59.5% used a condom at last sex with their most recent partner. A large majority of the young women in the entire sample reported high hope (n=1897; 88.9%).

Household risk environment characteristics: The average household size was comprised of 6.3 members (SD = 2.6). Of the household members, the mean number of youth in school was 2.9 (SD = 1.5). On average, 77% of school-aged youth in the household were enrolled in school (SD = 0.22). Most of the young women had a female parent/guardian (90.0%) and also lived with a biological parent in the household (79.4%). Typically, a greater percentage of females lived in the households than males, indicated by the percent of female residents (66.1% female [SD = 18.2%]). The average household age was 21.9 years old (SD = 7.2). More than half of the young women lived with a parent/guardian who completed some secondary school or higher (51.6%). The average household consumption per capita, a log-transformed measure of the amount of goods purchased and consumed in the last month in Rands, was 5.7 (SD = 0.8). Food insecurity in the last month was a problem for 17.0% (n=362) of the households.
Table 6.1. Characteristics of the South African young women and their households

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n=2014)</th>
<th>No. (%) or Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>15.7 ± 1.7</td>
<td></td>
</tr>
<tr>
<td>Age, year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>165 (7.7)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>401 (18.8)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>450 (21.1)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>467 (21.8)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>357 (16.7)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>166 (7.8)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>86 (4.0)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>43 (2.0)</td>
<td></td>
</tr>
<tr>
<td>Sexual debut</td>
<td>637 (29.9)</td>
<td></td>
</tr>
<tr>
<td>Non-condom use</td>
<td>260 (41.2)</td>
<td></td>
</tr>
<tr>
<td>Early sexual debut (&lt;15 years old)</td>
<td>164 (26.5)</td>
<td></td>
</tr>
<tr>
<td>High hope</td>
<td>1897 (88.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Household Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td>6.3 ± 2.7</td>
<td></td>
</tr>
<tr>
<td>Number of youth in school</td>
<td>2.9 ± 1.5</td>
<td></td>
</tr>
<tr>
<td>Percent enrolled in school</td>
<td>0.77 ± 0.22</td>
<td></td>
</tr>
<tr>
<td>Female parent/guardian</td>
<td>1922 (90.0)</td>
<td></td>
</tr>
<tr>
<td>Biological parent in household</td>
<td>1696 (79.4)</td>
<td></td>
</tr>
<tr>
<td>Percent of female residents</td>
<td>0.66 ± 0.18</td>
<td></td>
</tr>
<tr>
<td>Average household age</td>
<td>2.19 ± 7.2</td>
<td></td>
</tr>
<tr>
<td><strong>Household Socio-economic Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log of household consumption (Rands)</td>
<td>5.7 ± 0.8</td>
<td></td>
</tr>
<tr>
<td>Parent/guardian education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>594 (27.9)</td>
<td></td>
</tr>
<tr>
<td>Primary or less</td>
<td>439 (20.6)</td>
<td></td>
</tr>
<tr>
<td>At least some secondary or more</td>
<td>1100 (51.6)</td>
<td></td>
</tr>
<tr>
<td>Food insecurity</td>
<td>362 (17.0)</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)Numbers do not equal to total n in some categories due to missing values.

\(^b\)Frequency and percentage reported for the subsample of sexually active young women (n=637).
Associations between the household risk environment and hope

Table 6.2 depicts the bivariate relationships between the household risk environment variables and hope.

**Hypothesis 1: Adverse household demographic conditions will be negatively associated with hope.** In exploring the associations of household demographic characteristics, a few of the variables were significantly related to the level of hope. Young women in households with fewer school-aged youth in school were more likely to report high hope (p < .01). Unexpectedly, when the young women’s biological parent lived in the household, the young women were less likely to report high hope (p < .05). The sample mean of the average household age was older for young women who reported high hope compared to low hope (p < .001). Household size, percent of youth enrolled in school, female parent/guardian, and percent of female residents were not significantly associated with the level of hope.

**Hypothesis 2: Household SES will be positively associated with hope.** For the relationships between the household SES variables and hope, the parent/guardian education (p = .54) and food insecurity (p= .91) were not significantly associated with hope. The mean household consumption value was higher for young women with high hope compared to low hope (p < .001).
Table 6.2. Associations between the household risk environment and low and high hope

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Low hope (n=238)</th>
<th>High hope (n=1897)</th>
<th>p^b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%) or Mean ± SD</td>
<td>No. (%) or Mean ± SD</td>
<td></td>
</tr>
<tr>
<td>Household Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td>6.6 ± 2.8</td>
<td>6.3 ± 2.7</td>
<td>.13</td>
</tr>
<tr>
<td>Number of youth in school</td>
<td>3.2 ± 1.6</td>
<td>2.9 ± 1.5</td>
<td>**</td>
</tr>
<tr>
<td>Percent enrolled in school</td>
<td>0.80 ± 0.21</td>
<td>0.77 ± 0.22</td>
<td>.10</td>
</tr>
<tr>
<td>Female parent/guardian</td>
<td>220 (92.4)</td>
<td>1702 (89.7)</td>
<td>.17</td>
</tr>
<tr>
<td>Biological parent in household</td>
<td>201 (84.4)</td>
<td>1495 (78.8)</td>
<td>*</td>
</tr>
<tr>
<td>Percent of female residents</td>
<td>0.64 ± 0.18</td>
<td>0.66 ± 0.18</td>
<td>.25</td>
</tr>
<tr>
<td>Average household age</td>
<td>20.5 ± 6.1</td>
<td>22.1 ± 7.3</td>
<td>***</td>
</tr>
<tr>
<td>Household Socio-economic Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log of household consumption</td>
<td>5.6 ± 0.8</td>
<td>5.7 ± 0.8</td>
<td></td>
</tr>
<tr>
<td>Parent/guardian education</td>
<td></td>
<td></td>
<td>.54</td>
</tr>
<tr>
<td>None</td>
<td>66 (27.7)</td>
<td>528 (27.9)</td>
<td></td>
</tr>
<tr>
<td>Primary or less</td>
<td>43 (18.1)</td>
<td>396 (20.9)</td>
<td></td>
</tr>
<tr>
<td>At least some secondary or more</td>
<td>129 (54.2)</td>
<td>971 (51.2)</td>
<td></td>
</tr>
<tr>
<td>Food insecurity</td>
<td>41 (17.2)</td>
<td>321 (16.9)</td>
<td>.91</td>
</tr>
</tbody>
</table>

*p<.05; **p<.01; ***p<.001.

^aNumbers do not sum to total n in some categories due to missing values.

^bComparisons between low hope (mean hope score less than 3) and high hope (mean hope score of 3 or more) were made using the t-test for continuous variables and the \( \chi^2 \) for categorical variables.

Association between hope and sexual risk behaviors

Hypothesis 3: Hope will be negatively related to sexual risk behaviors. Table 6.3 presents three sets of logistic regression models for hope’s relationship with the odds of sexual risk behavior outcomes – sexual debut, condom use with recent partner, and early debut before the age of 15.

The unadjusted models depict the bivariate relationship between hope and the sexual risk behavior. Adjusting for age in the models did not change substantially the strength or magnitude of hope’s relationship with the sexual risk behavior. The models for sexual debut regressed on hope included the entire sample (n=2135). High hope young women had lower odds of initiating a sexual debut than low hope young women, adjusting for age (AOR = 0.54; 95% CI 0.39-0.73).

The models for non-condom use with recent partner and early debut were restricted to the subset of young women in the sample who reported a sexual debut (n=637). Hope was not significantly
associated with the odds of non-condom use at last sex with a recent partner, nor with an early
debut when adjusting for age. While not significant, the odds ratios for condom use with recent
partner (AOR= 0.87; 95% CI 0.20-1.25) and early debut (AOR = 0.75; 95% CI = 0.45-1.26) were
in the expected directions.
Table 6.3. Unadjusted and age-adjusted odds ratios for sexual risk behaviors regressed on hope

<table>
<thead>
<tr>
<th></th>
<th>Sexual Debut (n=2135)</th>
<th></th>
<th>Non-Condom Use (n=637)</th>
<th></th>
<th>Early Debut (n=637)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>OR (95% CI)</td>
<td>AOR† (95% CI)</td>
<td>n (%)</td>
<td>OR (95% CI)</td>
<td>AOR† (95% CI)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.67</td>
<td>0.0</td>
<td>0.79</td>
<td>1.53</td>
<td>0.48</td>
<td>7.69</td>
</tr>
<tr>
<td></td>
<td>(0.52-0.88)***</td>
<td>(0.0-0.0)***</td>
<td>(0.53-1.19)</td>
<td>(0.77-27.68)</td>
<td>(0.31-0.74)***</td>
<td>(5.41-9.98)***</td>
</tr>
<tr>
<td>High hope</td>
<td>541</td>
<td>0.59</td>
<td>0.54</td>
<td>318</td>
<td>0.87</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>(28.6%)</td>
<td>(0.45-0.78)***</td>
<td>(0.39-0.73)***</td>
<td>(59.3%)</td>
<td>(0.56-1.34)</td>
<td>(0.20-1.25)</td>
</tr>
<tr>
<td></td>
<td>134</td>
<td>0.72</td>
<td>0.75</td>
<td>(25.5%)</td>
<td>(0.45-1.16)</td>
<td>(0.45-1.26)</td>
</tr>
</tbody>
</table>

Notes: †Models are adjusted for age. *p < .05, **p < .01, ***p < .001
Testing for the mediated effect of hope

We hypothesized that hope would mediate the significant relationships between household risk environment variables and sexual risk behaviors (sexual debut, condom use with recent partner, and early debut). When controlling for the household risk environment variables, hope was not significantly associated with non-condom use at last sex with recent partner or with early debut (data not shown). As a result of this missing mediation criterion, there was a lack of evidence to show that hope mediates the relationship between household risk environment and non-condom use, and household risk environment and early debut. Therefore, we did not proceed with assessing the mediated effect of hope on the non-condom use and early sexual debut outcomes. However, hope was significantly related to sexual debut when controlling for the household risk environment variables, so we continued to evaluate the criteria for hope’s mediated effect on the relationship between household risk environment and sexual debut.

Hypothesis 4: The household risk environment will be positively associated with sexual debut.

Table 6.4 shows the multivariate relationship of sexual debut regressed on all the household risk environment variables together in the model. Based on the mediation criterion that the household risk environment variable needs to be significantly associated with sexual debut, both the number of youth in school and average household age had the potential to be mediated by hope. Young women living in a household with an increasing number of youth enrolled in school had a decreased odds of reporting initiation of sexual activity (AOR = 0.87; 95% CI = 0.77-0.99), albeit marginally significant. As the average age of the household residents increased, young women’s odds of reporting having initiated sexual activity decreased (AOR = 0.98; 95% CI = 0.96-1.00), also of marginal significance. Because all the other household risk environment variables did not meet the criteria for mediation, we only continued our assessment of the mediated effect of hope with the ‘number of youth in school’ and ‘average household age’ independent variables.
Table 6.4. Multivariate association between household risk environment and sexual debut

<table>
<thead>
<tr>
<th>Sexual debut (n=2135)</th>
<th>AOR†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.0</td>
<td>(0.0-0.0)***</td>
</tr>
</tbody>
</table>

**Household Demographics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>AOR†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household size</td>
<td>1.02</td>
<td>(0.95-1.09)</td>
</tr>
<tr>
<td>Number of youth in school</td>
<td>0.87</td>
<td>(0.77-0.99)*</td>
</tr>
<tr>
<td>Percent enrolled in school</td>
<td>1.67</td>
<td>(0.88-3.13)</td>
</tr>
<tr>
<td>Female parent/guardian</td>
<td>1.38</td>
<td>(0.95-2.01)</td>
</tr>
<tr>
<td>Biological parent in household</td>
<td>0.87</td>
<td>(0.67-1.12)</td>
</tr>
<tr>
<td>Percent of female residents</td>
<td>0.83</td>
<td>(0.45-1.53)</td>
</tr>
<tr>
<td>Average household age</td>
<td>0.98</td>
<td>(0.96-1.00)*</td>
</tr>
</tbody>
</table>

**Household SES**

<table>
<thead>
<tr>
<th>Variable</th>
<th>AOR†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of household consumption</td>
<td>1.01</td>
<td>(0.87-1.16)</td>
</tr>
</tbody>
</table>

\(^a\)Parent/guardian education

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>AOR†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>1.06</td>
<td>(0.79-1.43)</td>
</tr>
<tr>
<td>Secondary or more</td>
<td>1.03</td>
<td>(0.80-1.34)</td>
</tr>
</tbody>
</table>

\(^b\)Food insecurity

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>AOR†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food insecurity</td>
<td>1.02</td>
<td>(0.77-1.35)</td>
</tr>
</tbody>
</table>

Notes: † Model is adjusted for age and all other household risk environment variables. * p < .05, ** p < .01, *** p < .001
Reference categories: \(^a\)No education; \(^b\)No food insecurity

Hypothesis 5: Hope will mediate the relationship between number of youth in school and sexual debut, and between average household age and sexual debut. In continuing with the mediation analysis, we re-assessed the total effects of number of youth in school and of average household age on sexual debut by only including those two independent variables in the age-adjusted logistic regression model on the sexual debut outcome. Figure 6.1 shows the odds ratios, the coefficients, and the standard errors for the path model of hope mediating the relationship between number of youth in school and sexual debut. Each of the four paths to assess the mediation criteria is depicted. The total effects of the number of youth in school’s association with sexual debut, or the \(c\) path, is significant (OR = 0.92; 95% CI = 0.86-0.99). The association between the number of youth in school and hope, or the \(a\) path, was not significant (OR = 0.93; 95% CI = 0.85-1.01). Because the mediation criterion for a significant relationship between the
independent variable and the mediator was not met, hope is not considered a mediator of the relationship between the number of youth in school and sexual debut.

Figure 6.1. Analysis for the mediation by hope of the relationship between number of youth in school and sexual debut. Odds ratios and the regression coefficients with their standard errors are reported for each path. All paths are adjusted for age and the average household age. *p < .05; ***p < .001.

Figure 6.2 focuses on the odds ratios, the coefficients, and the standard errors for the path model of hope mediating the relationship between the average household age and sexual debut. Each path depicts one of the four criteria assessed for mediation. The total effects, or the c path, of the association between the average household age and sexual debut was marginally significant (AOR = 0.98; 95% CI = 0.97-1.00). The relationship between average household age and hope, or the a path, was significant (AOR = 1.03; 95% CI = 1.01-1.05). The relationship between hope and sexual debut, while controlling for average household age, or the b path, was significant (AOR = 0.55; 95% CI = 0.39-0.74). When determining the direct effects of average household age on sexual debut while controlling for hope in the model, or the c’ path, this relationship was no longer significant (AOR = 0.99; 95% CI = 0.99-1.00). All four of the criteria for mediation were met with average household age as the independent variable. Further, calculation of the
Sobel test indicated significant mediation by hope of the relationship between average household age and sexual debut ($z = 2.18$, $p = .03$).

Figure 6.2. Analysis for the mediation by hope of the relationship between average household age and sexual debut. Odds ratios and the regression coefficients with their standard errors are reported for each path. All paths are adjusted for age and the number of household youth. * $p < .05$; ** $p < .01$; *** $p < .001$.

6.4 Discussion

We present evidence from a large representative sample of young women ages 13-20 in Agincourt, South Africa showing how hope is related to the household risk environment and to sexual risk behaviors guided by the Hope and HIV Prevention framework. The majority of young women in the sample reported high hope for their future, which aligns with studies of adolescents in the US (Dubow et al., 2001; Lopez, Rose, Robinson, Marques, & Pais-Ribeiro, 2009 Marques, & Pais-Ribeiro, 2009) and in South Africa (Boyce & Harris, 2012). Our results show that hope is associated with facets of the household risk environment. In particular, young women with high hope live in households where there are significantly higher mean household consumption levels than young women with lower hope. Households in our sample reported low levels of consumption per capita suggesting limited wealth and access to resources; the average household
consumption in our sample amounted to Rands 300 (approximately $40) per person per month. Helping households to improve consumption as a means to meet their food and nonfood needs may help young women build hope. Young women with high hope compared to low hope were also less likely to report having had a sexual debut (OR 0.59, 95% CI 0.45-0.78). The negative association between high hope and risk behavior suggests that efforts to help young women avoid initiating sexual activity, an essential prevention mechanism to stop HIV transmission at a time when South African young women are particularly risky, would benefit by fostering their hope.

This study lends mixed support to the idea that aspects of the household risk environment are associated with the hope for future opportunities, a relationship that has been described theoretically in the literature (Bernays et al., 2007). In testing hypothesis one, we found that some facets of the household membership significantly relate to young women’s hope. As expected, young women who lived in households that had an older average age – likely an indication of more adult members in the household along with fewer youth – were more likely to report high hope. Surprisingly, young women who did not live with a biological parent and who lived in households with fewer youth in school were more likely to report high hope. Youth are more likely to develop hope when they have stable relationships with supportive adults (Shorey, Snyder, Yang, & Lewin, 2003), so participants who reported high hope may have had other important adults besides their parents living in the household. Previous research on adolescent hope (Padilla-Walker, Hardy, & Christensen, 2011) suggests that exploring the nature of the adult supervision that the young women receive may help explain which aspects of the household risk environment have a significant effect on hope. Our study does not elucidate the reasons why these household demographic variables have a significant relationship with hope, nor does it clarify what about living with a biological parent and with fewer youth in school results in lower odds of reporting high hope. Qualitative research with young women and their household members would
help identify which characteristics of the household have an important effect on the development of hope, and the processes by which these characteristics act on hope for young women.

We found mixed support for the relationship between the household SES variables and hope when testing hypothesis two. We focused on multiple dimensions of SES to capture the potential differential relationship of household education and wealth with hope for young women. More household consumption, an indicator of wealth, was significantly associated with greater likelihood of high hope. Previous research has demonstrated a positive association of measures of wealth with psychosocial assets like well-being (Diener, Sandvik, Seidlitz, & Diener, 1993; Ferrer-i-Carbonell, 2005) and optimism (Robb, Simon, & Wardle, 2009), but not with hope (Snyder, 2005). We did not find a relationship between parent/guardian education and hope and between food security and hope. The lack of the relationship between the parent educational aspect of household SES and hope was surprising because of the numerous other advantages for children of better educated parents, including improved children’s educational outcomes (Eccles, 2005), achievement (Davis-Kean, 2005), and health outcomes (Wickrama, Conger, Lorenz, & Elder Jr, 1998). In light of the findings that older average household age is associated with hope but not the level of parents’ education, young women’s hope may have been protected just as a result of having more opportunities to interact with important adults rather than requiring better educated adults to foster hope. Finally, our study focused on the household as the micro risk environment. Other micro risk environment factors not explored in this study, such as peer influence (Maxwell, 2002) and school context (Roeser, Eccles, & Sameroff, 2000), also may prove to have important associations with hope. Future research should address what the most relevant elements of the micro risk environment are that influence young women’s hope.

Our findings also build on the research literature linking hope to sexual risk behaviors as tested in hypothesis three. In a setting like South Africa where the prevalence of HIV is high, engaging in sexual behavior increases the risk for the transmission of HIV (Pettifor et al., 2011).
Therefore, for young women in South Africa, having had sex is a HIV-related risk behavior. Low hope in our sample was associated with sexual debut, consistent with previous research with young women (Harris et al., 2002). However, the relationship between hope and further sexual risk behaviors for sexually active young women was not confirmed. Among participants who had already had sex, hope was not associated with additional risk behaviors like non-condom use with recent partner or early age of sexual debut. In some settings, greater hope is associated consistently with fewer risk behaviors (Bolland, 2003). Other research has shown mixed findings with hope related to some risk behaviors but not others among sexually active youth (Kagan et al., 2012), suggesting that more research is needed to understand how hope is associated with sexual risk behaviors in different settings. It will be important to explore longitudinally with young South African women how hope acts to influence sexual debut and affects sexual risk behaviors once young women become sexually active. Further, we may not have found an association between hope and risk behaviors among sexually active young women in our study because hopeful young women could have used other protective behavioral mechanisms. Delaying sex or using condoms to avoid the risk of HIV are just two possible protective behaviors; hopeful young women may have used other protective behaviors not measured in this study, such as sexual decision-making and negotiating skills with their partners (Varga, 1997).

For the mediation analyses, we found limited support for our fourth and fifth hypotheses regarding the mediated effect of hope on the relationship between the household risk environment and sexual risk behaviors. To test the fourth hypotheses, we explored the relationships between the household risk environment, both household demographics and household SES, and sexual risk behaviors. For the fourth hypothesis, only two household demographic variables, number of youth in school and average household age, were associated with sexual debut with marginal significance. The other household risk variables were not associated with sexual debut as a
criterion to establish mediation, so we did not continue exploring the mediated effect of hope on the relationship between household risk and sexual debut.

The fifth hypothesis explored whether there was a mediated effect of hope on the relationship between household risk environment and sexual risk behaviors. We did not find evidence for the role of hope as a mediator of the relationship between the risk environment and non-condom use, and the risk environment and early sexual debut due to the lack of relationship between hope and these two sexual risk behaviors. For the sexual debut outcome, average household age was the only household environment variable which had a marginal association with sexual debut that was partially mediated by hope. Although this study cannot describe the reasons why average household age is related to hope and sexual risk behaviors, households with an older average age likely have more adults and/or fewer children living in the household. Additional adult supervision has been shown to help to increase young women’s hope (Padilla-Walker et al., 2011; Shorey, Little, Snyder, Kluck, & Robitschek, 2007) as well as preventing young women’s sexual risk behaviors (Cohen, Farley, Taylor, Martin, & Schuster, 2002). Overall, the results from the study provide preliminary evidence for some of the relationships theorized by the Hope and HIV Prevention framework. While hope was separately related to aspects of the risk environment and sexual risk behaviors as described in the framework, there was only one instance where hope mediated the relationship between the risk environment, average household age, and a sexual risk behavior, sexual debut. There are a few potential explanations for why we found limited support for the framework. First, although the Hope and HIV Prevention framework was developed to understand HIV prevention broadly, the authors applied it to examples of seeking HIV treatment among PLWHA and not for the prevention of risk behaviors (Bernays et al., 2007). Second, it is possible that our selection of risk environment and sexual risk behavior variables did not adequately reflect the constructs identified in the framework. To fully characterize how the HIV risk environment affected young women’s hope and risk behavior, we would need to explore
numerous social, physical, economic, and political factors at the macro and micro level of risk. In our study we limited the analysis to the household risk environment. Also, perhaps risk behavior as the outcome measures did not accurately reflect what the framework labeled as the “capacity for investment in HIV prevention” outcome (Bernays et al., 2007). We recommend more descriptive research to explore and identify the most salient aspects of the risk environment that impact on both hope and sexual risk behaviors for young women in South Africa.

Limitations

Our study had some limitations that may affect the interpretation of our results. First, the cross-sectional nature of our analysis limits the ability to make conclusions about the causal relationships between the household risk environment, hope, and sexual risk behaviors, meaning that we cannot: 1) identify the directionality of the studied relationships; 2) determine that hope temporally precedes sexual risk behaviors which would be necessary to establish with more certainty that hope mediates the relationship between the risk environment and risk behaviors; and 3) measure how changes in the household risk environment over time affect hope and sexual risk behaviors. Future waves of data collection in the parent study will allow for longitudinal analyses to help establish the causal nature of these relationships. Second, this study only focused on the household risk environment and did not measure other aspects of young women’s micro- and macro-level risk environment. In South Africa, numerous other physical, social, economic, and policy factors of the micro- and macro-level risk environment need to be explored in association with hope. Third, even though we focused on young women living in an impoverished rural area, this study examined hope among young women currently enrolled in secondary school. Educational benefits which provide more options for future opportunities (Guthrie, Butler, & Ward, 2009 2009) are likely to have a significant impact on levels of hope and partially may explain why a large majority (89%) of the young women reported high hope. The exclusion of some of the most disadvantaged young women in the Agincourt communities – such as out-of-
school young women, young women who could not open a bank account, or orphaned young women without a parent/guardian – misses the opportunity to understand the relationship between the risk environment, hope, and sexual risk behavior for the most at-risk young women in Agincourt. Fourth, the large prevalence of young women endorsing high hope in the sample may have limited the amount of covariation between hope and early sexual debut, and hope and non-condom use needed to establish the nature of the association. Finally, young women’s reports of their previous sexual behaviors may have been under-reported due to social desirability bias and error in recalling their first sexual experience, though the use of ACASI likely helped to decrease this bias.

**Strengths**

This study addresses gaps in the literature in several ways. First, results are drawn from a large representative sample of young women in school living throughout the rural Agincourt communities. Second, the study used a measure of hope that was created and validated with the sample population (Abler et al., in preparation). Third, the relationships tested were guided by the Hope and HIV prevention framework, which provides the theoretical basis for linking the risk environment to sexual risk behaviors through the hope mediator (Bernays et al., 2007). Fourth, the study incorporated measures of both income and education to capture household SES because there is the potential that different measures of SES may relate differently to various aspects of HIV-related risk behavior (Wojcicki, 2005). We also included a measure of household consumption for SES, which is a stronger measure than household income because consumption entails not only a calculation of the monetary value of what the household purchased but also what the household produced (Wagstaff & Watanabe, 2003).
Intervention Implications

On one level, our research suggests that improving hope may help young women delay their sexual debut, and therefore prevent the spread of HIV. As a stand-alone finding, the relationship between hope and sexual risk behavior implies that directly intervening on hope could result in changes to sexual risk behaviors. Interventions have been developed that successfully target and build hope, but they may not be relevant for young women in South Africa, partly because such interventions fail to consider the risk environment. For example in clinical populations such as outpatient cancer patients, a small-group support intervention helped the participants to rebuild and maintain their hope (Herth, 2000). In another intervention conducted with adolescents, a school-based hope curriculum was delivered over five weekly sessions and only focused on fostering the participants’ ability to achieve goals (Marques, Lopez, & Pais-Ribeiro, 2011 2009). Assuming that these interventions could be rigorously adapted for the South African context, implementing similar interventions for young women may have limited lasting efficacy without fostering a protective environment that is supportive for sustaining hope.

Because of our finding that hope is also associated with facets of the risk environment, concurrently intervening on factors beyond the individual level will likely help lead to sustained improvements to hope over time. Building and maintaining hope as a psychosocial strength requires consideration of how to reduce the micro- and macro-level environmental risk. Further, hope interventions have not been developed for populations in settings that, on face-value, could be described as adverse risk environments, nor have hope interventions explicitly aimed to change environmental-level determinants of hope. To our knowledge, there have not yet been any HIV-related structural interventions that target hope as either a primary or secondary outcome. Developing and implementing HIV-related structural interventions that consider how to also affect hope for young women, could help lead to lasting changes for young women’s risk behaviors.
Conclusion

This study is one of the first to document the association between the risk environment and sexual risk behaviors mediated through hope. It focuses on young women in South Africa at a crucial age when they are beginning to explore their sexuality and are at high risk of HIV. Through these analyses we demonstrate how young women’s risk environments could play a critical role in building psychosocial assets like hope while helping to develop healthy patterns of sexual behavior before youth transition into adulthood. Continued exploration of the relationship between hope and the risk environment in rural South Africa has the potential to help explain why young women have a disproportionate risk for HIV. Leveraging young women’s hope for the future through improvements to the risk environment need to be encouraged in order to reduce young women’s disproportionate risk for HIV in South Africa.
CHAPTER 7: DISCUSSION

This dissertation had two primary goals. The first goal was to create a measure of hope that was developed and validated in a sample of young women in rural South Africa. The second goal was to test hope as a mediator of the relationship between the risk environment and sexual risk behaviors, guided by the Hope and HIV Prevention framework. In this chapter, I provide an overview of the main findings from the dissertation. I highlight the major weakness and strengths of the research, consider the implications of the findings with regards to theory and public health practice, and make suggestions for future research.

7.1 Summary of Findings

The first manuscript, presented in Chapter 5, reports on the development and validation of the hope scale in young women ages 13-20 attending secondary school in one rural area in South Africa. The scale was created to help understand how hope relates to young women’s sexual risk behaviors in a setting where there is a high risk of contracting HIV.

Hope is likely informed by the cultural and social context. Therefore, it is important to have a hope measure adapted within the population of interest so that it is culturally appropriate. The population of interest for this study is young women in South Africa. In-depth interviews conducted with in-school young women, out-of-school young women, parents and guardians of in- and out-of school young women, and one secondary school teacher helped to define what hope means for young women in South Africa in order to develop the hope scale domains and items. The definition, experiences and meanings of hope were further honed through two focus group discussions, one with young women who were in-school and one with young women who
were not in school. The results from the in-depth interviews and focus group discussions were combined with a literature review of other hope scales and with hope theory to finalize the hope scale domains and items.

The initial scale included 24 items and was developed around three dimensions – anticipation of a positive future, personal motivation to achieve goals, and the influence of others on hope. To test the performance of the developed hope scale, it was administered in the baseline survey conducted with 1946 young women ages 13-20 participating in the CCT parent intervention study. The factor analysis resulted in only one dimension, though items representing all three of the original dimensions were retained. The final uni-dimensional hope scale was comprised of 12 items and the assessment of the internal consistency reliability was very high (Chronbach’s alpha = 0.95).

The results from the examination of the correlations between hope and other related measures to demonstrate construct validity of the hope scale were mixed. As an indicator of construct validity, convergent validity was tested by assessing the magnitude and direction of the correlations of the hope scale with education, mental health, family support, and risk behavior variables. As expected, hope was associated positively with young women’s grade level, negatively with anxiety and depression, and positively with family school support. We observed unexpected results for the relationship between hope and some of the risk behavior variables. The predicted negative relationship between hope and the risk behavior “alcohol use” was found in the hypothesized direction but was not significant. Nevertheless, hope was positively and significantly associated with condom-use self-efficacy and negatively associated with having ever been pregnant, as expected. Also, we did not observe the predicted negative relationships with hope and the two life stressor variables, loss of parent and household move.

The predicted correlations to establish construct validity may have differed from what was expected due to high levels of hope (mean = 3.4, SD = 0.6 on a scale ranging from 1-4) reported among the young women, which limited the variance of hope in the sample. The majority of the
measures which differed in the predicted direction and/or magnitude in their relationship with hope were those that had low prevalence in our sample, such as loss of parents (5.1%), household move (2.3%), and ever using alcohol (8.7%). Other possible reasons why some of the correlations with hope did not perform as expected include poor reliability and validity of the measures used to establish construct validity and the utilization of hope theory that may need further adaption to be culturally appropriate for the South African setting. Despite the partial support for the hope measure’s construct validity, the findings present a reliable measure of hope that was the first to be developed specifically for use in a resource poor setting.

The second manuscript, presented in Chapter 6, tested how hope related to the risk environment and to sexual risk behaviors using cross-sectional data from the CCT parent study baseline survey among 2135 young women ages 13-20 attending secondary school. The analysis was guided by the Hope and HIV Prevention framework, which conceptualizes hope as an individual-level psychosocial factor that is developed in the surrounding risk environment. Hope for the future, in turn, provides people with the capacity for HIV prevention, i.e., avoidance of HIV-related risk behaviors. Items measured in the CCT baseline survey were mapped onto constructs from the Hope and HIV Prevention framework. Household SES and household demographic variables from the survey measured the young women’s risk environment. The hope measure developed in this dissertation and described in Chapter 5 represented the hope construct. The sexual risk behavior variables – such as sexual debut, non-condom use, and early sexual debut – represented the risk behaviors that increase the chance of acquiring HIV.

Our study first associated hope with the household risk environment and then hope with sexual risk behaviors before exploring hope as a mediator of the relationship between the risk environment and sexual risk behaviors. We found partial support for the hypothesized negative relationship between the household risk environment and hope. Greater household consumption, a measure of household wealth that serves as an indicator of SES, was associated with young women who had high hope. However, other indicators of household SES, particularly parent
education levels and food insecurity, did not vary significantly with young women’s level of hope.

We found mixed support for the hypothesis that household demographic variables indicating an adverse risk environment were negatively associated with hope. In support of this hypothesis, we found that as the average age of the household members decreased, the likelihood that young women reported low hope increased. However, young women who indicated living in a less adverse risk environment, such as those who lived with a biological parent and in a house with more youth enrolled in school, were more likely to report low hope instead of high hope. Young women who lived with a biological parent were less likely to report high hope compared to young women not living with a biological parent. As the number of youth enrolled in school increased, young women were more likely to report low hope. Other variables that indicate an adverse household risk environment, such as household size, percent of youth enrolled in school, female-headed households, and percent of female residents, were not significantly associated with young women’s hope.

We found mixed support for the hypothesis that young women’s hope would be associated negatively with their sexual risk behaviors. Young women who had high hope compared to low hope were less likely to report having had a sexual debut. However, hope was not associated with sexual risk behaviors among the subsample of sexually active young women. Hope had no bearing on whether sexually active young women reported not using a condom with their most recent sexual partner or whether they were less than 15 years old when they first had sex. There was greater power to detect an association between hope and sexual debut because it was measured among the entire sample instead of the smaller subsample of young women who were sexually active. This may have influenced the lack of a significant relationship between hope and condom use and hope and early sexual debut.

The final part of our analysis was to associate these variables together by testing if hope mediated the relationship between the household risk environment and young women’s sexual
risk behaviors. To demonstrate mediation, we assessed if 1) the risk environment was significantly associated with the sexual risk behavior outcomes, 2) the risk environment was significantly associated with hope, 3) hope was significantly associated with the sexual risk behaviors while controlling for the risk environment, and 4) the size of the relationship between the risk environment and the sexual risk behaviors was attenuated when hope was included in the model (Baron & Kenny, 1986). Hope was not related to non-condom use and early debut, so we did not pursue testing hope as a mediator of the relationship between the risk environment and these sexual risk behaviors. However, high hope was associated with the sexual debut outcome suggesting that we could continue exploring hope as a mediator of the relationship between the risk environment and sexual debut. While assessing the other criteria to establish that hope mediates the relationship between the risk environment and sexual debut, we found that only two variables characterizing the household risk environment – average household age and number of youth in school – were related to sexual debut. The number of youth in school was not significantly associated with hope, indicating that hope is not a mediator of the relationship between number of youth in school and sexual debut. As for average household age, it was significantly associated with hope, not significantly associated with sexual debut while controlling for hope, and the Sobel test to calculate the mediated effect was significant. Based on this assessment, the only relationship we found that was mediated by hope was between the average household age and sexual debut. Young women who live in households with older residents on average, were more likely to have high hope than young women living in households with younger residents on average. In turn, young women with high hope compared to low hope were more likely to not have had sex.

7.2 Study Strengths

This is the first study to develop a measure of hope specifically for use with young women in South Africa. The study used the valid hope measure to assess the role of hope in mediating the
relationship between young women’s household risk environments and their sexual risk behaviors. We relied on a number of important techniques, approaches and methods to strengthen the findings.

First, this study used mixed methods research to characterize young women’s hope in South Africa, by: 1) conducting formative research with young women, their parents, and teachers to explore the meaning of hope for young women; 2) reviewing the hope theory and hope scale research literature, and 3) testing the measure of hope in a large, representative sample of young women ages 13-20 enrolled in secondary school. It is crucial that psychosocial measures, which are socially and culturally constructed, be defined and tested within the population in which the measure is created.

We triangulated the findings regarding young women’s meanings of and experiences with hope through formative data collection with different types of informants (i.e., young women in-school and out-of-school, parents/guardians, and a teacher) and different qualitative data collection methods (i.e., in-depth interviews and focus group discussions). Interviews with young women who were in-school and out-of-school helped us to understand the range of their hopeful and hopeless experiences. Young women enrolled in school likely have more opportunities for their future while young women who have not finished school are likely to have fewer future options. The interviews with the parents and teachers helped to round out the definition of hope by including an articulation of the adult point-of-view of young women’s hope. By conducting both in-depth interviews and focus group discussions, we were able to refine our understanding of young women’s hope while further honing a definition of hope that resonated with the young women in the discussion groups.

The results from the formative work were analyzed in tandem with a literature review of hope theory and of over 15 previously developed hope scales. The literature review helped in developing the domains and the items to measure hope. The comprehensive review of the hope literature spanned the fields of psychology, nursing, and psychiatry in which the bulk of hope
theory has been researched. The measure of hope was carefully developed based on this considerable body of existing hope scales and hope theory to strengthen our measure of hope. For instance, the formative research demonstrated that young women’s hope was formed, in part, by their interpersonal relationships with important people in their lives. Pre-existing hope theory (Dufault & Martocchio, 1985; Stoner, 1997) and hope scales (Herth, 1991) had already identified interpersonal hope as an essential part of the hope construct. As a result, we retained the concept of the influence of important people on young women’s hope in our measure due to the formative work combined with the literature review.

We used a large, randomly-selected sample of young women ages 13-20 in secondary school in rural Agincourt to validate the hope scale and test its associations with the risk environment and HIV risk. Further, the survey sample of young women was selected from the same population of in-school young women who were interviewed during the formative phase of the research to develop the scale (although participants in the formative research were ineligible to participate in the survey). Thus, the hope scale was quantitatively tested in the same population of young women in which it was qualitatively developed.

Second, we used a novel psychosocial theory, the Hope and HIV Prevention framework, to guide our assessment of the relationship between hope and the risk environment, the relationship between hope and sexual risk behaviors, and hope mediating the relationship between the risk environment and sexual risk behaviors (Bernays et al., 2007). Broadly, the Hope and HIV Prevention framework is a model that depicts a mechanism by which the social and structural conditions characterizing the risk environment result in differential risk of a poor health outcome (Krieger, 2001). The framework fits into a growing body of psychosocial research approaches to understanding the HIV epidemic. These approaches consider how the environment promotes and protects individual-level psychosocial changes that affect the likelihood of acquiring of HIV (Poundstone et al., 2004). To our knowledge, the theoretically driven hypotheses in the study provided the first assessment of hope’s relationship with the risk environment and sexual risk
behaviors in the context of a high HIV prevalence setting. Although there was partial evidence for
the influence of the risk environment and hope on sexual risk behavior, the study findings do
highlight that there are potential effects of the risk environment on risk behavior, mediated by
hope that need to be explored further.

7.3 Study limitations

Despite its strengths, the study is not without limitations.

First, even though we surveyed a large representative sample of young women, the
recruitment procedures and the eligibility criteria have the potential to bias the findings. This
study does not generalize to the experiences of young women in Agincourt who are not enrolled
in school, as they likely do not have as many future opportunities as young women enrolled in
school. Other eligibility criteria, such as having a parent/guardian with the documentation to open
a bank account, suggest that young women who have limited access to basic services and social
grants in South Africa could not enroll in the study. Young women without documentation are
likely to be quite poor because identity documents are required to apply for most social services
and welfare grants in South Africa. In particular, due to Agincourt’s close proximity to
neighboring Mozambique, there are a number of Mozambican refugees in the area who do not
have the legal standing to obtain South African identity documents. As a result of excluding
disadvantaged subpopulations of young women who were not enrolled in school or who lacked
identity documents, we likely overestimated the level of hopefulness of young women ages 13-
20 in Agincourt. Despite the potential for the overestimation of young women’s hope, our
measure was able to identify young women with low hope. Also, although the young women
included in the sample are likely to be relatively well-off in comparison to those who were not
eligible to participate, in absolute terms the majority of the study participants still should be
regarded as poor and disadvantaged. For example, the average household consumption per capita
suggested that half of the young women were living in households that spent only approximately
R370 (or $42) per month per person and nearly every household in the sample would be eligible for social welfare grants provided to the poor in South Africa. Finally with regards to the limitations of our sample, the findings cannot generalize to other populations in Agincourt and elsewhere in South Africa. Assessing hope in other groups, like older adults, males, out-of-school youth, and urban residents should be a topic of future research.

Second, due to the use of cross-sectional data, we cannot assess the direction of the observed associations nor can we claim a causal relationship between the risk environment, hope and sexual risk behaviors. With only cross-sectional findings, the results should be considered as exploratory in nature. These findings provide the justification for future studies that can explore these relationships prospectively. The nature of the causal relationship between hope and sexual risk behaviors has the potential to be interactive and reciprocal, where hope and risk behaviors cyclically affect each other. Longitudinal studies have shown that hope and other expectations for the future can prospectively predict sexual risk behaviors (Borowsky et al., 2009; Burns & Dillon, 2005; Rothspan & Read, 1996), but also that sexual risk behaviors can predict future psychosocial traits, like depression (Hallfors et al., 2004; Sabia & Rees, 2008). Despite our inability to test the causal nature of these relationships, we used the Hope and HIV Prevention framework to establish the directionality of our model, including hope as a mediator and sexual risk behaviors as the outcomes.

Third, we collected self-reported information from young women about their sexual behaviors, which has the potential to be influenced by recall bias and social desirability bias. Recall bias may have affected the retrospective reports of young women’s sexual risk behaviors, especially the age at sexual debut for young women who did not recently start having sex. We used three different measures of sexual risk behaviors to capture a range of young women’s recall periods, and included sexual debut which is likely the easiest sexual behavior for young women to recall. Young women’s answers on the survey might have been influenced by the desire to present themselves in a positive way, especially with regards to under-reporting their sexual risk behaviors.
behaviors or over-reporting their hope. In order to minimize social desirability bias, we conducted the interviews in a private location using an ACASI-administered survey.

Fourth, the quantitative methods and analyses that we used demonstrate the strength and magnitude of the relationships we studied, but they do not provide an explanation for why the relationships exist. For example, it is unclear why hope was related to sexual debut but not to condom use or to early debut. Our findings may not have been powered to show a significant relationship between hope and non-condom use, and hope and early sexual. The small prevalence of low hope in the smaller sample of sexually active young women potentially weakened the power to find significant associations. In fact, the direction of the relationship between hope and these subsequent sexual risk behaviors was negative as predicted even though the association was not significant. We did not explore hope’s association with numerous other sexual risk behaviors, including age-mixing, gender-based violence in relationships, transactional sex, lack of condom-use with all partners, and multiple partnerships. It is also possible that high hope young women used other secondary mechanisms to avoid the risk of HIV. They may have adapted hope-influenced strategies, such as partner selection mechanisms and decision making and negotiating skills with their partners (Varga, 1997) to help reduce their risk of HIV. Finally, young women who were sexually active may have relied on different psychosocial assets or cognitive/emotional processes besides hope in order to judge and respond to potential HIV risks, which is a topic for future research.

Finally, we were only able to study the micro-level household risk environment. Complete characterization of the risk environment which influences hope and sexual risk behaviors also needs to include the social, political, economic, and physical aspects of the macro-level risk environment. The risk environment may also contain other micro-level factors, like school and peer context, which we did not consider in our study. The young women who participated in the study were similar with regards to age, race, area of residence, school attendance status, and gender. They all lived within a similar macro-level risk environment, so there was not enough
variance in any potential macro-level risk environment measures within the sample to test their relationships with hope and sexual risk behaviors. Future research comparing multiple settings in South Africa and elsewhere would help to elucidate the role of the macro-level risk environment. Nevertheless, one major benefit of the homogenous sample was that the similar sociodemographic characteristics of the participants likely reduced some potential bias due to confounding factors.

7.4 Implications for Theory

There has been a growing interest in the field of HIV prevention to develop interventions that address the structural determinants of risk behavior and HIV infection. Understanding the mechanisms through which these structural level interventions influence risk behavior is crucial. Psychosocial approaches have the potential to help us understand how structural interventions can be effective. These approaches explore how social structures, e.g., the risk environment, influence the psychosocial assets which, in turn, provide protection against poor health outcomes (Krieger, 2001) such as HIV risk (Poundstone et al., 2004). The Hope and HIV Prevention framework is an example of a psychosocial approach for addressing how the risk environment affects sexual risk behaviors by targeting hope as a mediating psychosocial asset.

Overall, the Hope and HIV Prevention framework uses a novel, assets-based approach for considering how changes to the risk environment build hope and facilitate reductions to the spread of HIV. Findings from our study have the potential to inform how the Hope and HIV Prevention framework can be used in other settings and with other populations. We make the following recommendations to improve the applicability of the framework for exploring how the risk environment influences hope and, in turn, helps to prevent HIV-related risk behaviors. First, further consideration of what constitutes the risk environment needs to be defined by the framework. Although the risk environment is unique to the population and the setting under review, the framework does not provide guidance on how to characterize the risk environment.
Without recommendations for how to select the most important aspects of the risk environment that impact hope and risk behaviors, application of the framework might overlook the most salient features of the risk environment related to HIV. We found limited evidence for the relationships between the risk environment and risk behavior, likely in part due to how we operationalized the risk environment only at the household level. There may have been other important micro-level risk environments for young women, such as school and peer context, or macro-level risk environments, such as the broader political, economic, cultural, and social contexts.

Second, the outcome of the model provided by the Hope and HIV Prevention framework was the “capacity for investment in HIV prevention”, which included the prevention of risk behaviors (Bernays et al., 2007). However, the authors described the framework by providing an example to illustrate how the impact of the risk environment on hope influences the uptake of ART among PLWHA (Bernays et al., 2007). As a result, the framework describes the nature of the relationships between the risk environment, hope and treatment behavior outcomes, but does not expand upon its role in primary HIV prevention using sexual risk behaviors as the outcome. Our findings suggest that more clarity is needed to describe how hope influences various risk behaviors. For example, not all HIV-related risk behaviors were equally associated with hope in our sample. We found that hope was associated with sexual debut, but not with other sexual risk behaviors among those who were sexually active. Therefore, the framework could be improved by further considering the differential impact of hope on risk behaviors that increase the spread of HIV.

Finally, the framework should further explore the temporal nature of the relationships between the risk environment, hope and sexual risk behaviors. The framework describes the relationships between the risk environment, hope and risk behaviors on a linear causal path, and also suggests that risk behaviors may then affect the future risk environment. Yet, other research suggests that risk behaviors also feedback directly on future levels of psychosocial factors, like
hope. For instance, in a longitudinal study, youth who initiated sexual activity were more likely to become depressed (Hallfors, Waller, Bauer, Ford, & Halpern, 2005; Sabia & Rees, 2008).

Consideration of the reciprocal relationship between variables would help the framework to establish the causal processes by which the risk environment impacts on both hope and risk behavior.

### 7.5 Implications for Public Health Practice

**Hope as a public health construct**

Public health prevention often uses a deficits approach to improving health (Morgan & Ziglio, 2007) by focusing on the eradication of problems and the prevention of negative events. This dissertation highlights the importance of an assets approach to promoting health through the development of positive strengths, such as hope, as a means to reduce the risk of HIV. We borrow our approach from the discipline of positive psychology, which explores how psychosocial assets, such as coping strategies, optimism, resilience, and hope, act positively to influence health outcomes (Fredrickson, 2000; Richman et al., 2005). We focus on how hope is developed in less adverse risk environments and the protections against HIV risk that hope can provide.

As a construct and a theory, hope thus far has been studied predominantly in the disciplines of psychology (Snyder, 2002), psychiatry (Gottschalk, 1974) and nursing (Stoner, 1997). As interest in hope builds within public health (Coughlin, 2006), research is increasingly focusing on hope in the context of problems related to poor health outcomes, like obesity (Kelsey et al., 2011), lack of exercise (Snyder et al., 1991), and lack of adherence to medicine (Moon, 2001). Hope may play its most important role with regards to health outcomes in adverse risk environments where it is more difficult to engage in protective health behaviors. Some public health research has focused the effect of hope on sexual risk behaviors in adverse settings, such as sexual risk behaviors among homeless youth (Bolland, 2003; Kagan et al., 2012). Young South African women potentially face numerous adversities such as poverty, gender inequality and
violence, which wear against their hope and their ability to avoid risk behaviors related to HIV. Our research adds to the growing public health literature that focuses on hope as a psychosocial asset developed by the risk environment, which influences how risk behaviors may be prevented or changed.

*Hope and adolescent sexual risk behaviors*

Adolescence is a time when youth begin to take risks that have the potential to become habits. Thus, intervening with adolescents before they start to engage in risk behaviors is likely to be more effective than trying to change the behaviors once they have already begun. For young women in South Africa, this is especially important because of their high risk of HIV by the time they reach 24 years old. The longer a young woman in South Africa waits to begin having sex, the fewer partners she is likely to have by the time she is 24, which decreases her risk for HIV (Mpofu et al., 2006). Young women who delay their sexual debut avoid other risk behaviors once they do start having sex. They are less likely to have coerced sex during their first sexual experience (Moore, Awusabo-Asare, et al., 2007), more likely to avoid unplanned pregnancies (Mpofu et al., 2006; Wellings et al., 2006), and less likely to report significant age-mixing with their partner (Pettifor et al., 2009). Our finding that hope is related to sexual debut suggests that fostering young women’s hope early in their development might provide a protective effect for delaying sexual debut and, as a result, help young women avoid a cascade of other related sexual risk behaviors that are associated with early sexual debut.

*Intervention implications*

The results from our study provide support for using intervention approaches that improve the household risk environment in order to foster hope and reduce sexual risk behaviors. We found that the average age of household residents was associated with young women’s sexual debut, and hope mediated this relationship. This finding suggests that one promising target for structural interventions that may help young women avoid initiating sexual activity is to increase the average age of the household membership. In the South African context, younger age households
likely result from macro-level economic structures in the risk environment, which requires that adults migrate from rural areas to urban centers to find employment (Madhavan & Schatz, 2007). Fewer adults remain behind in the rural households to take care of the household children while the other family members work in urban centers in order to financially to support their rural family back home. Creating more jobs in rural areas so that adult family members do not need to migrate away from their rural households in search of work could provide young women with more adult supervision that fosters their hope while reducing the chances of sexual debut and potentially decreasing their risk of HIV.

Finding evidence in our sample that hope mediates the relationship between elements of the household risk environment and sexual risk behaviors also has implications for broader structural interventions. These empirical findings support the concept that the risk environment can act through hope to affect risk behaviors. Our research follows closely on the heels of greater consideration of the mechanisms through which structural changes to the risk environment work to reduce HIV risk (Auerbach et al., 2011). The study provides preliminary evidence that hope mediates the relationship between the risk environment and sexual risk behaviors. Our results also show that the risk environment is independently associated with hope, and hope is independently associated with sexual risk behaviors. Consideration of our findings together with the Hope and HIV Prevention framework suggests that hope is an important intermediate outcome of structural changes to the environment that may ultimately lead to the reduction of HIV-related risks. Therefore, when it comes to developing and testing structural HIV interventions, hope should be considered as an intermediate outcome to explain the processes through which the structural changes work. Testing not only the intended behavioral and health outcomes of interventions, but also the mediating mechanisms, such as hope, provides better information about intervention efficacy (Beadnell, 2007).
7.6 Implications for Future Research

This dissertation research provides preliminary evidence to demonstrate that hope mediates the relationship between the risk environment and risk behaviors. Future research is needed to build upon these findings and explore further the role that hope may play in high HIV prevalence settings.

Future research on the measurement of hope

Further research on the measure of hope will help confirm its factor structure. More research is needed to explore why the items loaded onto a single factor structure within the population of young women in rural South Africa, even though we developed the hope scale to encompass three domains. The single domain of the hope scale may have resulted because: 1) the hope scale items need to be refined to map better onto the three conceptually distinct domains of hope that were hypothesized (anticipation of a positive future, personal motivation to achieve goals, and influence of others on hope); or 2) although young women in South Africa discussed multiple aspects of hope during the qualitative phase of data collection, they may not distinguish between the three dimensions as distinct components of hope on the survey. The former possibility suggests that the hope construct is multi-dimensional in the population, but that the scale domains and items should be re-designed for young women in South Africa. The latter possibility suggests that hope is a uni-dimensional concept for young women in South Africa, and that the adaptation of hope theory for the South African setting needs to reconsider the multi-dimensional nature of the hope construct that is described in the literature.

Further research with young women can provide more support for the construct validity of the hope scale. Because hope is an abstract psychosocial asset, there is no obvious objective measure against which our measure of hope can be compared to establish validity. Associating our measure of hope to other hope measures that have been developed and used in non-South African settings might provide more evidence for the validity of our hope measure; we did not collect data on other measures of hope in our survey. Further qualitative research to explore how
hope is related to other cognitive, emotional, or behavioral characteristics could help identify the most salient aspects of the hope construct for young women. Finally, hope is likely influenced by stressful occurrences. Investigation of how young women’s hope performs over time as a result of negative events, compared to young women who do not experience the same negative events, would help to establish the construct validity of our hope measure for young women in Agincourt.

Also, determining why young women in our sample reported such high levels of hope is an important topic for future research. As discussed previously, hope was likely over-estimated because of our sample limitations, but it also could have been high based on how we categorized young women’s hope. For our study, we placed any young women who on average reported any indication of not having hope into the low hope category. In building more evidence for the performance of the hope measure, it will be important to identify the cut-point value between low and high hope that is the most relevant for predicting sexual risk behaviors.

More research is needed to evaluate and validate how the hope scale performs in other populations. Our findings for the hope scale are not generalizable to everyone in Agincourt and elsewhere in South Africa. Establishing the psychometric properties of the hope scale with other populations – such as out-of school young women, males, older youth and adults, and urban-dwelling youth – will help broaden the range and utility of the hope scale in different settings. The macro and micro risk environment influences psychosocial factors, like hope, differently in various populations because psychosocial factors are formed by the social and cultural environment; hope might then associate differently with risk behaviors depending on the characteristics of the population. For example, some studies have shown that depression in young men is not associated with their sexual risk behaviors while depression in young women is associated with their sexual risk behaviors (Hallfors et al., 2004; Sabia & Rees, 2008). Therefore it will be important to test how the hope scale performs with regards to its factor structure, validity and reliability in other populations. Also, studying the hope scale in other populations
will help inform refinements to the scale domains and items so that it is valid and reliable for a broader range of people beyond young women ages 13-20 who attend secondary school.

*Future research to establish the nature of the relationships between the risk environment, hope and sexual risk behaviors*

More research is needed to characterize the important facets of the risk environment for young women in South Africa that influence both their hope and their likelihood of engaging in sexual risk behaviors. In a setting like South Africa, where poor, young, rural, black women face numerous disadvantages and challenges – such as poverty, unequal gender norms, violence, crime, and HIV risk (Steyn et al., 2010) – an asset like hope may be important for coping. Hope can provide young women with the opportunity to dream beyond their challenges towards a better future. Having the motivation to live for those future dreams, i.e., hope, has the potential to be beneficial for helping young women avoid sexual risk behaviors. Exploring which determinants of the macro and micro risk environments have the greatest impact on hope and on sexual risk behaviors for young women in South Africa will help inform how structural interventions can be effective for HIV prevention.

Because this study was cross-sectional, we were not able to determine the causal direction of how the risk environment relates both to hope and to sexual risk behavior outcomes, and how hope relates to sexual risk behaviors. Longitudinal studies will be necessary to assess how the risk environment influences hope and sexual risk behaviors over time, as well as the causal mechanism by which hope and sexual risk behaviors affect each other reciprocally.

*Future research on the influence of hope in the CCT parent study*

In conclusion, a significant motivation for conducting this research was to develop a measure of hope that could be used with participants in the CCT parent study. Hope has the potential to mediate the effect of the CCT intervention on the primary (HIV and HSV-2 infection) and secondary (sexual risk behaviors) outcomes. Exploring the role of hope longitudinally over the
course of the three year intervention period will help to describe the mechanism by which the CCT intervention acts to change the way that young women think about their future. The parent CCT intervention study is guided by the hypothesis that young women in the CCT intervention arm will be more likely to attend and complete secondary school in comparison to young women enrolled in the non-intervention control arm. In turn, the improved school attendance among young women in the intervention arm will likely lead to fewer sexual risk behaviors and a smaller chance of HIV infection compared to young women in the control arm. As observed elsewhere with young women in South Africa, greater educational attainment, including completing a secondary education, is protective against young women’s risk of HIV infection (Bärnighausen et al., 2007; Pettifor, Levandowski, et al., 2008). Hope is one of the mechanisms by which increased school enrollment has the potential to decrease sexual risk behaviors because increased education likely provides young women with more opportunities for their future. Hope should be tested as a mediator of the relationship between CCT intervention effects (i.e., improvements to the risk environment related to school opportunities) and sexual risk behaviors. It will also be important to determine how hope impacts the incidence of HIV and HSV-2 for young women. Further, the data available from the CCT intervention will be longitudinal in nature, which will aid in the exploration of the causal relationships between the risk environment, hope, and sexual risk behaviors over time. Overall, this dissertation study provides the parent CCT intervention with a promising measure of hope that was developed and validated specifically for the intervention study population and which can be used to assess important effects of the CCT intervention at the conclusion of the study.
APPENDIX I: IN-DEPTH INTERVIEW GUIDE

Hope In-depth Interview Guide for Young Women

Section 1 – Definitions and meanings of hope

Interviewer script: The main goal of this interview is to learn more about what hope means to you. We are really interested in hearing your ideas and thoughts. Like the consent form said, please remember that your answers are confidential and that we can switch off the tape recording at any time. We can skip any questions that make you feel uncomfortable. If you would like to stop the interview, there are no consequences to ending the interview at any time. We are not collecting any personal identifiable information in this interview. Do you have any other questions before we start? [Wait for response; answer any questions as is appropriate]. I would like to begin the interview by talking about what hope means to you, and as we continue through the interview, we will use your definition of hope throughout.

When you hear the word ‘hope’, what do you think about?
   Probes: What is your definition of hope? What are other words associated with hope? Are there slang words or phrases that mean hope? What does hopelessness mean? How do your thoughts about hope compare to your thoughts about hopelessness? How do you think your friends and others at school think about and talk about hope? How are your ideas about hope similar/different to other people your age?

Using your ideas of what hope is, can you tell me about a time when you felt hopeful?
   Probes: Thinking back to a time when you felt very hopeful, describe the experience? How did you feel? How did you become hopeful? Were others involved in helping you feel a sense of hope; and if so, who were they and what role did they play? What else helped you to feel hopeful? What were the things that made it easy to feel hopeful? What happened as a result of feeling hopeful?

Using your ideas of what hope is, can you tell me about a time when you were not feeling hopeful?
   Probes: You mention that hope means (insert her definition of hope); now think of a time when you did not have hope. Please describe this experience when you did not have (much) hope. How did you feel? What happened to make you feel hopeless? What role did other people play in helping you feel hopeless? Can you tell me about anything that you might have done to try to change the situation? What else led you to feel hopeless in this situation? What made it difficult to feel hopeful? What happened as a result of feeling hopeless?

What are the things that help make you feel more hopeful? What makes you feel less hopeful?
   Probes: How do the things you mention make you feel more/less hopeful? Overall, would you consider yourself to be a more hopeful or hopeless person? If you were to compare yourself
to others, would you describe yourself as more or less hopeful as others? You said you were more [hopeful/hopeless], tell me more about your reasons for thinking that? You may not always feel hopeful/hopeless; when you feel the other way, how does that affect how you think about what you can do or achieve in your future? When you are feeling hopeful/hopeless, how does that affect how far you think about yourself into the future?

Section 2 – Determining the influence of hope on expectations for the future and achievement

Interview script: Now I would like to ask more about your hopes and goals for the future, and how you think about achieving them.

What are the things in your life that are important to you? How do you intend to achieve them?

Probes: You mentioned (repeat some of the things she listed); are there other things (e.g., school, family, community, love, relationships, health, job/money/career) that are important to you? What are the reasons that these things are important to you? What are your goals for achieving them? What are you currently doing to work toward getting the things that are important to you? What are you planning on doing to work toward the things that are important to you? How does your hope affect what is important to you?

What do you expect your life to look in X years (X=number of years that it will take participant to graduate from high school. If the participant is at the beginning of 9th grade, X would be 4)?

Probes: Can you share with me some of the things you expect to achieve in X years? Tell me more about what you hope you will be doing with your life – e.g., where and what you will be studying/working/living. What kinds of things/activities should happen between now and then to help your life look like you described? What are you doing right now to work toward what you would like to achieve? What else will you need to do between now and then to have your life be like you described? What are events/activities that you can be doing to help you make sure your life will be like you expect?

Take a moment to think about what your life could look like in X years if everything went wrong and you had no hope. What would your worse-case scenario life look like?

Probes: How would this worst-case scenario life in X years be similar/different than the life you expect? What would have to happen between now and then to make this future come true? Consider the things you mentioned that are important to you (list some of the things she previously mentioned); what would happen to them in this future? What are you doing now to make sure this future does not happen? What will you need to be doing between now and then to make sure that this does not happen? How likely do you think your life will look like this? If you had more hope, how would it affect the possibility of achieving this future?

Now imagine that your life in X years is everything that you could imagine; that it was perfect and you were very hopeful. What could your best-case scenario life look like?

Probes: How would this best-case scenario life be similar/different to the life you expect in X years? What would have to happen between now and then to make this future come true?
Consider the things you mentioned that are important to you (list some of the things she previously mentioned); what would happen to them in this future? What would you have to do to make this future happen? What role would others (e.g., family, friends, peers, teachers, etc.) play to make this happen? What else would have to happen that would make this best-case scenario come true? What are you doing now to help make this future happen? What will you need to be doing between now and then to make sure that this does not happen? How likely do you think your life will look like this? If you had less hope, how would it affect the possibility of achieving this future?

Section 3: Associating hope with HIV risk behavior

Interviewer script: Thank you for sharing with me your ideas about what your future could look like. For the final part of the interview, I would like to learn about how your thoughts about hope inform how you think about HIV risk behavior.

How do your ideas about hope affect your thoughts on HIV risk?

Probes: Please tell me about your concerns for getting HIV? What are the things that make you more/less likely to get HIV? (If she doesn’t mention it, probe on unprotected sex, older boyfriends, family, education, support, etc.) How do you think your concern about (list the HIV risks she just mentioned) would be changed if you had more/less hope? You mentioned some things that were important to you, like (remind her of the things she previously mentioned); how does wanting to achieve those important things affect your concerns about HIV? How are your thoughts about your future affected by HIV?
APPENDIX II: FOCUS GROUP DISCUSSION GUIDE

Hope Focus Group Discussions Guide for Young Women

Script: Thank you for coming today to participate in the focus group discussion. My name is _____ and I’ll be the moderator leading our discussion today. This is _______; she’ll be helping today by taking notes. As you can see, we are a group of people and we will be recording the discussion like we did the interview. We ask that you keep what you hear today during the discussion to yourself and do not share it with anyone outside of this room, as what we discuss is confidential. We are not collecting any personal identifiable information in this interview. We will use pseudonyms [fake names] to identify each other, and if you do mention yours or someone else’s name, we will delete it from the transcript. Please speak loudly so that the recorder can pick up your voice. Thank you again for participating. Do you have any other questions before we start? [Wait for response; answer any questions as is appropriate].

Before we start the discussion, I would first like to go through with you some of the ground rules for our time together. They are:

- There are no right or wrong answers
- Please, only one person speak at a time
- Maintain confidentiality – do not share information about the discussion with people outside this room
- Do not disrupt or be verbally disrespectful
- Everyone should have an equal chance to talk and no one should dominate the conversation
- (Ask…) Is there anything else that you all would like to add?

We are really interested in hearing ideas and thoughts from every one of you.

Warm-up

Script: Let’s start out first by getting to know one another first.

- Please, introduce yourself and tell us something special/unique about yourself to the group.
  (Go around the room and make sure that everyone has the chance to introduce herself.)
- (For drop-outs) Tell us, what is it like to be a young woman in this community? (For YW from the pilot:) Tell us, what is it like to be a young woman here at school at Bunny Khoza?

Identifying Hope

Script: When we originally interviewed you, we heard many definitions and ideas about hope. We would like to talk with you about some of the definitions that emerged from our one-on-one conversations with you and hear more about your ideas about hope.

- How do you tell the difference between young women who are hopeful and hopeless?
  - If they say that it has to do with school or family, etc., follow up on that: What about young women who are in school – what makes them hopeful? How do you
distinguish those young women in school who are hopeful compared to those young women in school who are hopeless? How do you tell which drop-outs are hopeful and which ones are not hopeful? How can you tell which orphans are hopeful and which ones are hopeless?

- What are the personal characteristics and indicators of someone who is hopeful?
  - What do they do? How do they act/behave? Who do they talk to and hang out with? What do they achieve or what can they achieve? How do they feel about life? How do they feel about themselves?
- What are the external situations and indicators of someone who is hopeful?
  - What is their life like? How is their family and life at home? What kinds of friends do they have?
- What are the personal characteristics and indicators of someone who is hopeless?
  - What do they do? How do they act/behave? Who do they talk to and hang out with? What do they achieve or what can they achieve? How do they feel about life? How do they feel about themselves?
- What are the external situations and indicators of someone who is hopeless?
  - What is their life like? How is their family and life at home? What kinds of friends do they have?

- What are your definitions of hope? *(Have everyone write their ideas on a piece of paper first; collect the definitions and then write everything on a piece of flip chart paper. Add other definitions that emerged from the interviews that the FGD participants do not otherwise mention.)*
  - Of the definitions listed, what are the definitions that make the most sense to you most as a group? Which of the definitions seem weird or do you not agree with? Are there other definitions of hope that you think we should consider? Give an example of a young woman you know who has shown that she is hopeful (try to find someone that everyone in the group knows), using the definition that you have described.

- Where do young women get their hope from?
  - List the things that give young women hope. What helps young women to be hopeful? Who helps them to be hopeful?
- How do young women lose their hope? How do young women keep from getting hope?
  - What things are young women without hope missing in their lives? What keeps them from having hope? What types of people make sure they don’t have hope?
- In general, are young women in your community hopeful or hopeless? Explain your reasoning. *(Work on making this a discussion among the FGD participants.)*
  - What would you say about young women in general in your community about their level of hope, are they hopeful or hopeless? Explain your reasoning. Please give some specific examples of young women you know who are hopeful and young women you know who are hopeless.

**HIV & Hope**

- Now think of young women in your community who have a lot of hope.
What are the kinds of things that they do that may put them at risk for HIV? What are the kinds of things you think they do to protect themselves from HIV? Where do they go (or whom do they turn to) concerning issues related to HIV?

- Now think of young women in your community who have little hope.
  - What are the kinds of things that they do that may put them at risk for HIV? What are the kinds of things you think they do to protect themselves from HIV? Where do they go (or whom do they turn to) concerning issues related to HIV? How are the HIV-related behaviors of young women who are hopeless different or the same compared to those who are hopeful?

- Overall, how do you think that having hope or not having hope affects the risk of behaving in a way that puts young women at risk for HIV?
  - (First ask in general. Only if no one has anything to say, then ask using the following suggestions.) How do the hopeful compared to the hopeless:
    - Handle using condoms with partners?
    - Have older boyfriends
    - Sleep with guys for money,
    - etc?
APPENDIX III: DRAFT 24-ITEM HOPE SCALE

Personal motivation for achieving goals

- I enjoy thinking about how I am going to achieve what I want in my future.
- It is easy for me to set goals.
- I am the kind of person who makes plans for how to reach my dreams.
- I can achieve my dreams if I focus on it.
- I trust that I will achieve the goals that I set for myself.
- It is easy for me to reach my goals.
- I am careful about what I am doing now because it could affect my plans for the future.
- I know that the future is under my control even if things go wrong.

Anticipation of a positive future

- Even when I fail, I keep trying because I know it will be better next time.
- There is nothing that can get in my way of having a good future.
- I trust that I will be able to do everything I want to do in my future.
- I believe that good things happen to me.
- I have more confidence in my future success than others my age.
- I believe that the things I am doing now are preparing me for what I want in the future.
- I do not worry too much about problems now because I believe my life will be better in the future.
- I know that my life will be better in the future.
- I believe that I will be successful even when there are difficulties in my life now.
- I have faith that I will be successful.

Influence of others on hope

- My friends and I share the dream to have a successful future.
- My parents/guardians support me to achieve my goals.
- The important people in my life tell me that I will have a successful life.
- I feel comfortable asking others for help when I need it to reach a goal.
- I will be successful because I know other people like me whom have been successful.
- There are people who can help me when I need guidance to achieve something important to me.
APPENDIX IV: FINAL 12-ITEM HOPE SCALE

*Interviewer Script: We would like you to answer some questions about your future and your hope for success. Please answer how much you agree with the following statements about yourself on a scale of one to four, where 1 = totally disagree, 2 = disagree, 3 = agree, and 4 = totally agree.*

1. I know that my life will be better in the future.
2. The important people in my life tell me that I will have a successful life.
3. I can achieve my dreams if I focus on them.
4. I have faith that I will be successful.
5. I believe that I will be successful even when there are difficulties in my life now.
6. I believe that the things I am doing now are preparing me for what I want in the future.
7. I can achieve my dreams if I focus on them.
8. I trust that I will be able to do everything I want to do in my future.
9. There are people who can help me when I need guidance to achieve something important to me.
10. I will be successful because I know other people like me whom have been successful.
11. I have more confidence in my future success than others my age.
12. It is easy for me to reach my goals.
REFERENCES


