Major Depression and Suicide Among Adolescents in Colombia: Formative Research to Adapt Evidenced-Based Interventions

Background

As part of the World Mental Health Initiative, in 2009 the Center for Excellence on Research in Mental Health (CESISM) in Medellín, Colombia administered the WHO Composite International Diagnostic Interview (1, 2) to a national representative sample of 1,586 adolescents between the ages of 13 and 17. The CIDI is designed to measure the prevalence of mental disorders in a population. Findings from the Colombian Mental Health Study demonstrated that both depression and suicide are affecting significant proportions of the adolescent population. Among the total sample, 7% of adolescents experienced episodes of major depression in their lifetime and 11% reported seriously considering suicide. Similar to U.S. studies, when stratified by gender, the prevalence of both major depression and suicidal ideation are statistically significantly higher among females (9.2% and 14.3% respectively), and they are positively associated with age.

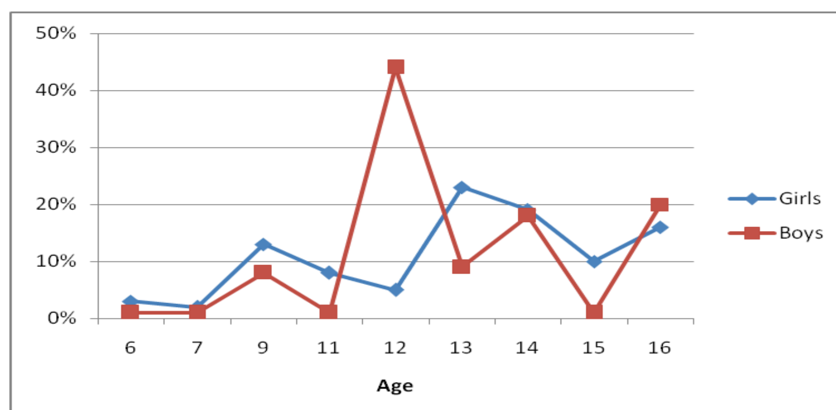
Table 1. Prevalence of Major Depression and Suicide Ideation in Lifetime and in the Past Year.
National Study of Adolescent Mental Health in Colombia, 2009

		Major Depression		**Suicide Ideation**	
		Lifetime	12 months	Lifetime	12 months
Sex	Male	4.9	3.5	7.3	1.8
	Female	9.2	6.5	13.8	7.1
Age	13	4.1	2.3	7.1	2.2
	14	5.8	3.9	11.5	5.0
	15	7.1	4.6	9.3	4.3
	16	8.3	6.7	10.8	4.3
	17	10.3	7.7	14.6	6.8
	Total	**7.1**	**5.0**	**10.6**	**4.5**

Interestingly, although older adolescents had a higher prevalence of suicidal ideation, researchers reported a drastic increase in suicidal thoughts among boys between the age of 12 and 13, while prevalence for girls increased between ages 12 and 14. These findings indicate that there may be

major life changes during this time in adolescence that drive the upward trajectory of suicide planning and consequently suicide attempts. Therefore, mental health interventions may be most effective when geared towards this age group and when they are gender appropriate.

Graph 1. Proportion of Adolescents' Self-Reported Age of first Suicide Intentions. National Study of Adolescent Mental Health in Colombia, 2009



CESISM also evaluated the associations between risk and protective factors and adolescents' reports of major depression episodes or suicide attempts, and found that the risk and protective factors are similar for both outcomes, although they differ in their effect. The majority of risk factors for both major depression and suicide attempts involved family characteristics and substance abuse; they shared 8 risk factors related to the parents' mental health and physical and psychological abuse in the household. Similarly, they shared 5 of 6 total protective factors: supervision, strict father, spirituality, and communication with mother and father.

The published results from the 2009 survey were primarily descriptive and relied predominantly on bivariate associations. Multivariate modeling is needed to better understand the relationships between multiple family protective and risk factors, as well as assess the differences between adolescents who experience major depression versus those who have thoughts, plans and attempts around suicide. Although they may share the same risk and protective factors, it is unclear whether adolescents with suicidal thoughts and actions are a subpopulation of those with major depression. Furthermore, it is unclear how some protective factors might mitigate the effects of various risk factors, as is suggested in the literature on resilience (3). The proposed project will further CESISM's analysis of this dataset by developing multivariate models to assess the relative impact of various factors on each outcome and the potential interactions between such factors. The study will focus on risk and protective factors related to the family/household context, but will control for substance abuse in predictive models.

In order to gain further insight into how multiple risk and protective factors combine in the everyday lives of youth, the project will also employ qualitative interviews. In-depth interviews covering the 'life history' of adolescents aged 15-19 will allow a more holistic consideration of how various risk and protective factors might work together, or offset each other, among healthy youth as well as those who have experienced major depression. Delving deeper into youth's lived experience of these factors and their perspectives and experiences related to depression and suicide will provide a better picture of the mental health issues facing youth in Colombia.

Significance

There is strong evidence that untreated childhood and adolescent depression can persist into adulthood if untreated (4) and tends to be a predictor of more severe mental illnesses later in life (5). Although there is a well established knowledge base on depression and suicide among adolescents, most research on risk and protective factors has been performed in developing countries. The prevalence of major depression and suicide outcomes in Colombia are similar to those of the United States (6, 7), however, there may be regional differences within Colombia worth exploring, especially in a city like Medellín that has experienced endemic periods of violence. Violence within the home and in the community can increase the risk negative psychosocial outcomes in adolescents (8, 9); for this reason youth in Medellín may have distinct experiences that require investigation in order to develop contextually relevant health interventions.

The Center for Excellence on Research in Mental Health at CESISM University in Medellín is dedicated to conducting research on child and adolescent mental health, and to applying their results in a practical manner that will benefit the Colombian community. This project will provide CESISM with formative data that will help build a foundation for developing and/or adapting evidence-based mental health interventions that will address the prevalence of depression and suicide among adolescents in Medellín and Colombia.

Project Objectives

The primary objective of this project is to:

Develop a fuller understanding of how multiple family-level risk and protective factors shape youth's experience of major depression and suicidal ideation. This objective will be achieved by completing the following specific aims:

1. Perform a secondary analysis of the 2009 National Adolescent Mental Health survey in Colombia, developing a multivariate model that examines the effects of family-level risk and protective factors related to depression, suicidal ideation, planning, and attempts in adolescents.
2. Develop a holistic understanding of how youth experience family-level risk and protective factors in their daily lives.
3. Compare the insights gained from qualitative data with quantitative models in order to develop a fuller picture of youths' experiences of major depression and suicidal ideation.

Methods

Multivariate Modeling

A national representative sample of 1,586 adolescents was surveyed as part of the 2009 National Mental health survey. The sample was derived from 60 states and meant to represent the general population. Adolescents surveyed were between the ages of 13 and 17, had set homes, lived primarily in urban areas, and were not institutionalized. Outcomes of interest were episodes of major depression and suicide ideation, planning or attempts reported within the adolescents' lifetime, within the past 12 months, or within 30 days of the survey. Major depression and suicide outcomes were measured using the WHO CIDI and analyzed by CESISM researchers in a bivariate analysis to establish the prevalence of each outcome in their country.

This investigation will build on their analysis of the risk and protective factors by developing multivariate models that examine and compare three groups of youth: adolescents with "normal" mental health, adolescents exhibiting indicators of major depression, and those who reported suicide ideation, planning, or attempts. After controlling for socioeconomic status, education level, and gender, investigators will introduce dichotomous risk factor variables associated to

each outcome into each model: anxious mother, depressed mother, father consumes substances, father has a personality disorder, mother has attempted suicide, negligence, nervous mother, physical abuse between parents, physical abuse from father, physical abuse from mother, psychological abuse between parents, psychological abuse between parents, and 23 important life events (i.e. break-up of a romantic relationship or friendship, parents divorce, grave illness in the family, etc). In order to enhance comparability of the quantitative analysis and qualitative interview data, drug use (abuse of prescription drugs, cocaine, marijuana, and heroine) will be used as a control variable.

Variables considered to be protective factors, such as strict mother, strict father, communication with mother, communication with father, spirituality, and supervision, will be introduced into each model to evaluate how they mitigate the risk for depression and suicide outcomes. Due to previous results that the prevalence of major depression and suicide ideation, plans and attempts are higher among girls, modeling will all test for effect modification by gender. From these associative models, we hope to first determine the independent risk factors for major depression, suicide ideation, planning, and attempts. Second, establish whether those who report suicide ideation, plans, or attempts are truly a subset of depressed adolescents or are exposed to distinct risk factors. Finally, gain a better understanding of how risk and protective factor interact to increase or decrease the risk of major depression, suicide ideation, planning and attempts among adolescents in Colombia.

Qualitative Interviews

Recruitment

In-depth interviews will be designed to understand how youth perceive their own social and family context and how their experiences shape their mental health outcomes. The study will recruit youth based on key risk and protective factors identified in the quantitative portion of the project, however, not based on particular mental health outcomes. Because the project is interested in how some youth are resilient – or achieve positive outcomes despite their exposure to unfavorable circumstances – we seek to recruit youth with varying mental health outcomes. The inclusion of youth with favorable mental health outcomes will also lessen the potential for stigma to arise as a result of participating in the study. CESISM has committed to facilitating our collaboration with local institutions with which it has well-established existing relationships

for the purpose of participant recruitment. These include the Secretary of Health's Office for Mental Health and the Center for Mental Health Research in Medellín.

Evidence suggests an increased prevalence of youth experience suicide ideation between the ages and 12 and 14, therefore, we will primarily recruit male and female participants between the ages of 15 and 19. Ideally, youth in this age group will have had time to reflect on important life occurrences during their younger years and have gained greater perspective on these events. Another important consideration is that by this age girls have celebrated their 15th birthday or "quinceñera." In Colombian culture the 15th birthday marks the transition from childhood to womanhood and may represent an era of both joyful and stressful changes in adolescents' lives. In addition, although we do not anticipate that this project will be considered to be "research" according to the federal definition used by the IRB, we are confident that girls and boys over the age of 15 are locally considered to be young adults and able to consent to interviews of this nature. For safety considerations, youth who are current drug users will be excluded from participation in the study. In addition, we will not seek to interview youth currently experiencing suicidal ideation. We will ensure that CESISM has established appropriate referral procedures before beginning to recruit interview participants.

In-depth Interviews and the Life History Approach

The sensitive nature of discussions on the subjects of family, relationships, life events, as well as emotions surrounding these topics, necessitates that investigators use in-depth interview techniques. Youth may also feel more comfortable having these discussions with a native speaker and local individual. For this reason two assistants will be recruited and trained to implement interviews and transcribe, as well as assist the researcher understand the local Colombian Spanish terminology and slang. Assistants will be trained on ethical concerns using Family Health International's Research Ethics Training Curriculum.

A draft in-depth interview guide will be developed in the spring of 2011 in coordination with CESISM and Professor Karen Andes. While in Medellín, researchers will use key informant interviews with local professionals working with youth to gain additional perspectives on the issue. The guide will be revised to incorporate findings from the multivariate models and key informant interviews, and piloted shortly thereafter for final adaptations.

A life history approach will be utilized by the interviewer to guide the participant through his or her life story, encourage participant reflections, as well as help layout how past events and

relationships of the adolescent may have influenced their life in the past and the present. This method has been successful among adolescents in past research; the chronological nature of this approach is thought to facilitate organization of their thoughts and memories (10), as well as assist in engaging adolescents in sensitive topics of discussion (11, 12). A life history grid or calendar may be used by interviewers to help organize life events and elicit life history from the participant during the interview, as well as to identify patterns of experiences among youth during data analysis. Through this approach, investigators hope to gain rich descriptions of a variety of important life domains for adolescents, such as school and education, friendships and romantic partners, religiosity, extracurricular activities, and family context. Unanticipated themes that emerge from initial interviews will be integrated into subsequent interviews. Researchers expect that 15 to 20 interviews will be required to reach the point of saturation.

Transcription of interviews, as well as data analysis will take place concurrently with adolescent interviews; data will be analyzed in Spanish by the researcher. Through the life experiences of youth, the researcher will decipher differences between how girls and boys experience risk and protective factors, how family context impacts mental health, and uncover protective factors or resilient processes for further investigation.

Learning Objectives and Career Goals

Research has consistently shown that many health-related behaviors exhibited during adolescence; whether it is smoking, obesity, sexual debut, or depression, have important consequences throughout adulthood. At this time of psychosocial and physical development, adolescents become empowered to make their own decisions and for this reason I am particularly interested in health interventions that target this age group, because they have the potential to make lifelong impacts. In the past year at Rollins, I have explored different realms of adolescent health. I have interned at Planned Parenthood in Atlanta since September doing community outreach and performing research on sexual and reproductive health in the southeast. I have also worked closely with Dr. Solveig Cunningham this year to research the relationship between physical and mental health and social exclusion among adolescents. After I graduate from Emory would like to work on a programmatic level to implement health interventions with adolescents.

This project gives me the opportunity to improve on the quantitative and qualitative skills I have gained this year and apply them in real research settings, with an organization and population that will benefit. It will give me first-hand experience interacting directly with young

people and an opportunity to hear their perspectives on an area that I have been vigorously researching for 6 months. More importantly, I would like this project to lead into my Masters thesis, of which I want to focus on cultural adaptations of evidenced-based interventions for youth. This experience would build on the research I have been engaged in over the past year, as well as strengthen the skills I need to work in an area that I am passionate about.

Budget

Travel costs	**Unit Cost**	**Quantity**	**total**
Flight	$ 827.00	1	$827.00
Immunizations*			$0.00
Hepatitis A	$ -	1	$0.00
Hepatitis B	$ -	1	$0.00
Typhoid	$ -	1	$0.00
Yellow Fever	$ -	1	$0.00
Other recommended medicine	$68.96	1	$68.96
Room and Board	$ 400.00	2.5	$1,000.00
Research costs			
Transcription of interviews	$ 8.00	200	$1,600.00
Research Assistant/interviewer	$ 15.00	40	$600.00
Travel to interview sites	$ 25.00	1	$25.00
ICD-MX20 digital voice recorder	$ 124.97	1	$124.97
16 GB Memory Stick Pro-HG	$ 79.99	1	$79.99
office supplies	$ 50.00	1	$50.00
Student license Max QDA	$ 99.00	1	$99.00
Total Anticipated Costs			**$4,474.92**

**All immunizations are covered by AETNA student insurance if in-network

References

1. Harvard School of Medicine. (2005). *The World Mental Health Initiative*. Retrieved from http://www.hcp.med.harvard.edu/wmh/

2. Torres de Galvis, T., Berbesi Fernandez, D.Y., Bareño Silva, J., Montoya Velez, L.P., Cotes Torres, J.M., Sierra Hincapie, G.M., Estrada Monsalve, M.W. (2010). Análysis especial sobre Depresión e Indicadores de Suicidio. *The WHO World Mental Health Survey Consortium*., Medellín, Colombia.

3. Klevens, J. & Roca, J. (1999). Nonviolent Youth in a Violent Society: Resilience and Vulnerability in The Country of Colombia. *Violence and Victims*, 14(3), 311-322.

4. Nation Institute of Mental Health. (2009, January 30). *How do children and adolescents experience depression?* Retrieved from http://www.nimh.nih.gov/health/publications/depression/how-do-children-and-adolescents-experience-depression.shtml

5. Harrington, R., Fudge, H., Rutter, M., Pickles, A., & Hill, J. (1990). Adult Outcomes of Childhood and Adolescent Depression. *Archives of General Psychiatry*, 47, 465-473.

6. National Institutes of Health. (2010, July 29). *Major Depressive Disorder in Children.* Retrieved from http://www.nimh.nih.gov/statistics/1MDD_CHILD.shtml.

7. Centers for Disease Control and Prevention (2007). Suicide Trends Among Youths and Young Adults Aged 10-24 Years—United States, 1990-2004. Morbidity and Mortality Weekly Report, 56(35), 905-908.

8. Shahar, G., Cohen, G., Grogan, K.E., Barile, J.P. & Henrich, C.C. (2009). Terrorism-Related Perceived Stress, Adolescent Depression, and Social Support from Friends. *Pediatrics*, 124(2), e235-e240.

9. Kliewer, W., Murrelle, L., Mejia, R., Torres de Galvis., Y., Angold, A. (2001). Exposure to Violence Against a Family Member and Internalizing Symptoms in Colombian Adolescents: The Protective Effects of Family Support. *Journal of Consulting and Clinical Psychology*, 6, 971-982.

10. Haglund, K. (2004). Conducting Life History Research with Adolescents. *Qualitative Health Research*, 14, 1309-1319.

11. Anderson, J.E. & Brown, R.A. (1980). Notes for Practice: Life History Grid for Adolescents. *National Association of Social Workers*, 321-323.

12. Martyn, K.K., Reifsnider, E., & Murray, A. (2006). Improving Adolescent Sexual Risk Assessment with Event History Calendars: A Feasibility Study. *Journal of Pediatric Health Care*, 20(1), 19-26.

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Jeanne L. Long

Background: As part of the World Mental Health Initiative, in 2009 the Center for Excellence on Research in Mental Health (CESISM) in Medellín, Colombia administered the WHO Composite International Diagnostic Interview to a national representative sample of 1,586 adolescents between the ages of 13 and 17. They found that both depression and suicide are affecting significant proportions of the adolescent population, with 7% of adolescents having experienced episodes of major depression in their lifetime and 11% reporting seriously considering suicide. Although major depression and suicide prevalence in Colombia is similar to the U.S., there may be regional differences within Colombia worth exploring, especially in a city like Medellín that has experienced endemic periods of violence. Youth in Medellín may have distinct experiences that require further investigation in order to develop contextually relevant health interventions.

Methods: Using a mixed methods approach, CESISM and the researcher would like to understand how multiple family-level risk and protective factors shape youth's experience of major depression and suicidal ideation. Researchers will develop multivariate models that examine and compare three groups of youth: adolescents with "normal" mental health, adolescents exhibiting indicators of major depression, and those who reported suicide ideation, planning, or attempts. From these models, researchers will gain a better understanding of how risk and protective factor interact to increase or decrease the risk of major depression, suicide ideation, planning and attempts. To gain deeper insight into how multiple risk and protective factors combine in the everyday lives of youth, the project will implement 15-20 in-depth interviews with adolescents aged 15-19 using a 'life history' approach.

Roles of the Researcher, June 10-August 19, 2011:

1. Perform a secondary analysis of the 2009 Colombian National Adolescent Mental Health survey, developing a multivariate model that examines the effects of family-level risk and protective factors related to depression, suicidal ideation, planning, and attempts in adolescents.
2. Design and implement a qualitative research study that explores how youth experience family-level risk and protective factors in their daily lives. This includes development of interview guides, through research, key informant interviews, and findings from the multivariate model, as well as training of interviewers.
3. Analyze qualitative interview data and compare with insights from quantitative models to develop a fuller picture of youths' experiences of major depression and suicidal ideation.