Qualitative study of the sexual and reproductive health concerns of female adolescents using a new digital media program in the United States.

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Declaration

MPH (General) Mini-Dissertation

I, Kristen A. Daskilewicz, Student No. DSKKRI001, declare that the work that I have submitted is my own and where the work of others has been used (whether quoted verbatim, paraphrased or referred to) it has been attributed and acknowledged.

Signature: _____

Date: _____

Dedication

I would like to dedicate this thesis to:

- My mentor, Jennifer Miller. Thank you for giving me my start in the sexual and reproductive health field and supporting me in all of my professional endeavors. Your friendship has kept me laughing, up-beat, and motivated.
- My parents, for encouraging me to seek higher education and supporting me in my move to Cape Town.
- My partner, Thomas, for cooking, cleaning, and keeping me smiling while I was working.
- My thesis supervision team, Whitney, Erin, and Landon, for their many re-readings and endless support—thank you! Thank you! Thank you!

I would also like to thank the rest of Planned Parenthood Federation of America's New York Education team, Leslie, Deborah, Jennifer, Nicole, and Julia, for selecting me as a qualitative research intern, believing in me, and trusting me with this truly exciting project.

Abstract

In the United States (U.S.), there are disparities in sexual and reproductive health (SRH) based on age, gender, and racial/ethnic group. Young women, particularly African Americans and Hispanic/Latinas, experience high rates of unintended pregnancy and sexually transmitted infections (STIs). The majority of U.S. adolescents receive sexuality education; however, the information taught is sometimes incomplete or inaccurate, as there are no national requirements. Additionally, adolescents are not always comfortable seeking SRH information through traditional means. Although research is limited, literature suggests that new digital media, defined as user driven, interactive digital technology programs, can be used to provide discrete, accurate SRH education to adolescents. Planned Parenthood Chat/Text is one such program, comprised of "chat," an online instant messaging service, and "text," a mobile phone text messaging (SMS) service, that facilitate two-way communication between users and agents trained in SRH.

This study utilizes qualitative methods to explore the concerns of female adolescents (ages 15-19) using Planned Parenthood Chat/Text, and how they may differ by racial/ethnic group. The protocol (Part A) describes the program, the sampling of conversations, and ethical implications. The literature review (Part B) provides a review of previous research on new digital media SRH and its use by adolescents and minority populations in the United States (U.S.). As this research is limited, gaps in the literature are easily identified. Notably, no prior published papers were found utilizing qualitative methods to analyze chat or text conversations from adolescent girls generated by a SRH program.

The manuscript (Part C) was prepared according to submission guidelines for the Journal of Adolescent Health, and presents the analysis and results of this study. Nvivo 10 software was used to manage analysis and thematic networks were used to generate basic, organizing, and global themes for 150 chat and text conversations. Only a few themes varied

by racial/ethnic group, under the global themes of "seeking basic information about SRH" and "concerns about accessing healthcare," particularly around emergency contraception, risk behaviors, pregnancy, privacy, and costs.

These results reflected some known health disparities in African American and Hispanic/Latina adolescents, and may also reflect higher rates of pregnancy stigma in White American communities. Planned Parenthood Chat/Text was seen as an appropriate resource for adolescents of all racial/ethnic backgrounds. As this is the first study of its kind, more research is needed to develop a body of literature on qualitative evaluations of new digital media programs for SRH, as well as to better understand the implications of these findings for female adolescents.

Acknowledgements

Below is a clarification of the roles performed by each collaborator on this project.

Kristen A. Daskilewicz, University of Cape Town (UCT)/Planned Parenthood Federation of America (PPFA) (MPH thesis candidate and PI)

- Responsible for all project activities
- Collaborated to develop the research question
- Composed research protocol
- Organized IRB submission to UCT
- Designed methodology, including sampling
- Completed sampling of transcripts
- Created coding framework
- Conducted all coding and analysis, using Nvivo 10 software
- Synthesized results into a formal paper for submission to the Journal of Adolescent Health and for UCT MPH mini-dissertation

Whitney Arons, PPFA (Co-investigator, Co-Supervisor for thesis)

- Provided onsite supervision to thesis candidate at PPFA
- Served as liaison between the UCT team and PPFA
- Collaborated to develop the research question
- Collaborated on protocol development by providing editing and feedback
- Assisted in coding framework development by answering thesis candidate's questions and providing input on code definitions
- Assisted with coding when thesis candidate was unsure how to code a text segment
- Provided editing and feedback on journal manuscript

Erin Stern, University of Cape Town (Co-investigator, Supervisor for thesis)

- Provided support to thesis candidate during planning and analysis regarding qualitative research methods
- Assisted in fine tuning the research question
- Collaborated on protocol development by providing editing and feedback
- Assisted with coding when thesis candidate was unsure how to code a text segment
- Provided editing and feedback on literature review and journal manuscript
- Nominated external examiners

Leslie Kantor, PPFA (Co-investigator)

- Collaborated to develop the research question
- Provided feedback throughout protocol development and data analysis

Deborah Levine, PPFA (Co-investigator)

- Collaborated to develop the research question
- Provided feedback throughout protocol development and analysis
- Served as expert knowledge base on Planned Parenthood Chat/Text

Dr. Vincent Guilamo-Ramos, New York University (NYU) (Co-Investigator)

- Organized IRB submission to NYU
- Researched journals for article submission

Dr. Landon Myer, UCT (Co-Supervisor for thesis)

- Provided assistance to thesis candidate in completing paperwork and navigating UCT submission for ethics and mini-dissertation
- Gave feedback regarding formatting of protocol and journal manuscript

Table of Contents

Part A: Protocol

1. Background

1.1 Study Justification

Statistics on U.S. adolescents' sexual and reproductive health reveal the need for increased access to information and services. Although the teen pregnancy rate has dropped by 44% since 1990, the U.S. continues to have a higher rate than most other developed countries [1]. Additionally, young people ages 15 to 24 are highly at risk for STIs, as they make up almost half of all new infections per year despite representing only a quarter of the population at risk [2].

It is important to note that these statistics vary according to race/ethnicity. African American (non-Hispanic) and Hispanic/Latina teens have significantly higher pregnancy rates than their White (non-Hispanic) counterparts [3]. White teens also have higher self-reported rates of highly effective contraceptive use [1]. In 2010, the chlamydia rate for African American female teens (ages 15 to 19) was 6.6 times the rate for Whites. The rate for Hispanics was almost three times that of Whites [4].

As mobile and internet technologies continue to become a main information source for teens, it is important that public health professionals pursue a greater understanding of how those technologies are utilized for health. The internet is used by more than half of U.S. teens to find health information [5]. A national survey found that 52% of teens would like to use instant messaging for seeking information if made available on a sexual health website [6]. Additionally, in another national survey of twelfth grade girls (ages 17 to 19), half used their cell phones at least ten hours per week [7]. It has been suggested that mobile and internet technology may be useful for engaging with the typically underserved African American and Hispanic/Latina populations in the U.S. for their health needs [8]. While these populations are less likely to have access to internet on a computer [9], they are more likely to have cell phones and use them for data functions than the U.S. White population [10].

Mobile and internet technology is a relatively new field in sexual and reproductive health. Much of what has been written on the subject has examined one-way communication technologies, in which the health care source sends information to participants without interaction or return messages. Overall, these studies have suggested that these one-way technologies can be helpful in either improving sexual and reproductive health behaviors or health knowledge. Behavior studies have looked at the positive effects of using mobile phone technology to remind patients to take birth control pills [11] and decreasing future unwanted pregnancies in pregnant teens ages 15-17 [12]. Another study showed an increase in women obtaining STI testing after receiving educational text messages, but no difference in condom use [13]. Further research will be needed to determine which types of one-way education are most effective.

Patient initiated two-way mobile or internet technology has not been well examined in the research community. Past research has included examining instant messaging (chat) in library science, between reference librarians and information seekers. These studies used qualitative and quantitative methods to evaluate the agents' (librarians') ability to provide correct information and build rapport with clients [14, 15]. They did not specifically examine cultural differences between users. In the public health field, Eminovic et al (2004) found that an internet chat triage service for the U.K. was safe for use, by comparing nurses' recommendations (through chat) and doctors' recommendation (in person, clinical evaluation after chat) and also by surveying the users on their experience. Results were not broken down by race/ethnicity and the patients in this study were all 19 or older [16]. Related to sexual and reproductive health, Levine et al (2008) also reported on a patient-initiated sexual health text message service for adolescents, SEXINFO, which looked at knowledge, acceptability, and use of the program, which revealed African American teens were more likely to know about SEXINFO. SEXINFO requires texters to interact with the program by typing a numbered

answer to a response (i.e. “txt “1” if ur condom broke”), so no transcripts were available for qualitative analysis [17].

In September 2010, Planned Parenthood Federation of America launched the Planned Parenthood Chat and Text program, a national interactive technology utilizing two-way communication for sexual health information. This study seeks to better understand how that technology is being used. Although some research has examined the value and uptake of various types of mobile technology and internet interventions for health, very little research has been done on *interactive, two-way* mobile and internet communications. Research that *has* been done has focused on acceptability and prevalence of mobile and internet technology use. This study will utilize qualitative methods with chat and text transcripts to learn *how* the technology is being used.

Very little is known about how two-way communication mobile and internet technology for sexual health is being used—by the general population *or* young teens. Planned Parenthood Chat and Text was founded on the assumption that the technology would improve access to information and referrals because of high utilization of mobile and internet technology for other purposes by teens. Additionally, it was anticipated that users would feel more comfortable discussing personal health issues through an anonymous medium rather than first calling or visiting a health center. Studies support the idea that confidentiality impacts health seeking behavior, although it is unclear whether this varies by race/ethnicity [18, 19]. Some studies also suggest that decreasing anxiety or worry about health would help teens feel more at ease in seeking health services [20, 21].

Although a recent systematic review from Montague (2012) recommended that public health technology be tailored to meet the needs of different cultural communities, none of the aforementioned literature has *compared* the types of questions asked of two-way internet and mobile technologies by adolescents of different races/ethnicities. Because of the disparities in

reproductive and sexual healthcare among African American, Hispanic/Latino, and White adolescents in the United States, this study will utilize qualitative methods to explore the concerns, needs, and misconceptions of adolescents from these three groups who have accessed Planned Parenthood Chat and Text.

1.2 Planned Parenthood Chat and Text

Planned Parenthood Chat and Text is a two pronged technology that allows clients to interact with an agent trained to respond to sexual and reproductive health enquiries via Chat (instant message chat online, through plannedparenthood.org) or via Text (text message (SMS) by cell phone). In either instance, the interaction begins with the agent requesting certain demographic information (see Section 2.2 Data Collection and Recruitment). The user can ask questions regarding sexual and reproductive health which are then answered by the agent. Agents are employed through a recruitment agency (SEIU Communications Center, LLC) and trained by Planned Parenthood Federation of America for approximately 20 hours to learn how to respond to users. The agent uses the user's initial question as a starting point to provide sexual and reproductive health information and referrals, as well as to correct any misinformation or misconceptions the user may share. Although the program is able to used by anyone with access to the internet or a cell phone, the target audience is African American and Hispanic/Latina women ages 15-24, due to the known health disparities of those groups.

Because of the large scale of the Chat and Text program (currently, there are just over 10,000 conversations per month), pre-scripted messages were designed to answer anticipated sexual health questions. The agent reads the user's question and chooses the appropriate pre-scripted response. The agent may edit the response if necessary or also type a response. For example, if a user asks about the side effects of emergency contraception, the pre-scripted response would read as:

"*You may have some undesirable side effects while using emergency contraception. But many women have few or no problems. Any side effects usually go away in a day or two. Some women have nausea or throw up. Other side effects may include breast tenderness, dizziness, or headaches. Getting your period later or earlier than usual is also a common side effect."*

The conversation between agent and user continues until one party terminates the conversation. For chat users, this would entail closing the chat window in her internet browser. For text users, this would be signaled by either no longer responding to texts or by telling the agent she would like to end the conversation.

Planned Parenthood Chat/Text is currently available seven days a week (9:00-22:00 EST Monday to Friday, 9:00-17:00 EST Saturday, 14:00-22:00 EST Sunday). Planned Parenthood Chat/Text began with a pilot program in 2008. After receiving funding from a Packard grant, the Planned Parenthood Chat/Text program was fully implemented in 2010. Planned Parenthood Chat/Text was founded on three assumptions: 1) Chat and Text would be acceptable to teens; 2) Chat and Text would provide access to teens in moments of urgent need; and 3) Chat and Text live interaction would help decrease worry as a barrier to care.

In March 2012 (the time of sampling), there were a total of 8,374 Planned Parenthood Chat/Text conversations. By self-report, 15.5% identified as African American, 19.6% as Latino/Hispanic, and 48.2% as White. Adolescents age 15-19, comprised 42.8% of the total conversations for that month. Of those completing the post chat/text survey (1154), 92.8% strongly agreed or agreed that they liked using chat/text for this purpose and 89.2% strongly agreed or agreed it was helpful. From March 2012 on, agents have been asked to track in broad categories (abortion, birth control, emergency contraception, pregnancy tests, STD tests, and other) what conversations were about. However, these broad categories do not encompass detail, nor do they include concerns regarding confidentiality, their level of worry,

or the cost of services, which may be barriers to care for adolescents. Additionally, they do not identify health or access topics that have not been anticipated by the program's creators. In order to better understand the utilization of the Planned Parenthood Chat/Text program by African American, Hispanic/Latino, and White adolescents in the U.S., this study aims to use qualitative methods to fill in the gaps and add depth to these monthly statistics.

1.3 Study Purpose

The study purpose can be defined as:

- To gain a better understanding of what concerns female teens (ages 15-19) express while using the Planned Parenthood Chat/Text program and what their knowledge gaps are.
- To better understand how these vary by racial/ethnic group.

We would like to use this exploratory data to help inform future decisions in tailoring two-way technology to meet the needs of Planned Parenthood's female teen (ages 15-19) users. Additionally, considering the variations by race/ethnicity in how technology is utilized and accessed, as well as the prevalence of sexual and reproductive health needs, we aim to better understand the experiences of users from three different racial/ethnic groups: African American, Hispanic/Latina, and White. Because there are disparities in health among these groups, the findings of this study could help enhance understanding of how mobile and internet technology can be used to increase access to information and services, thus decreasing those disparities. Examining chat and text conversations utilizing qualitative methods will give a more in depth understanding of utilization beyond the number of users in each group and number of times a broad health topic is discussed.

1.4 Research Questions

The main research question can be defined as:

- How are the concerns of female teens (ages 15-19) utilizing a two-way mobile and internet technology, the Planned Parenthood Chat/Text program, different or similar by racial/ethnic group?

The following sub-questions will also be addressed:

- What health-related needs are most prominent in Chat and Text conversations? How do they vary by racial/ethnic groups?
- What barriers or facilitators to care arise in Chat and Text conversations? How do they vary according to one's racial/ethnic group?

We hypothesize that Chat and Text conversations will explore issues beyond broad health topics, such as concerns regarding confidentiality and health care access. Additionally, we believe that two-way mobile and internet technology will provide an appropriate means of addressing those concerns, as well as identifying and correcting misinformation and misconceptions a user may share.

2. Research Methods

2.1 Population and sample

This study will use secondary data from an internal evaluation done by Planned Parenthood Federation of America. One hundred and fifty transcripts were sampled including 75 chat transcripts and 75 text transcripts. Each of those 75 were comprised of transcripts from 25 African American female adolescents, 25 Latina/Hispanic female adolescents, and 25 White female adolescents, ages 15 to 19. Each group of 25 were the first 25 transcripts of their type from March 2012. Purposive sampling was drawn from March because it was the first month during which additional demographic information was recorded for users. Additional sampling may be used during or after analysis if the research team feels a level of saturation or in-depth understanding has not been reached.

Although the Planned Parenthood Chat/Text program is not limited to U.S. use, only conversations with U.S. users were sampled. Chat transcripts will be sampled from the online reports through LivePerson [22], and text transcripts will be sampled from the online reports from Mobile Commons [23]. Both Chat and Text conversations were included in sampling because both are regularly used by the study population.

The research team has chosen to use the term "conversation" rather than "transcript." The nature of the chat and text technologies means that interactions are at times disjointed. A text conversation may take place periodically over several hours or even more than one day. Therefore, for text, we have chosen to define a single conversation as a series of two-way exchanges between a single user and one or more agents with no more than 24 hours lapsing between exchanges. A chat conversation will be defined as a transcript with at least two two-way exchanges between a user and an agent, as defined by the agent. Two-way exchanges are defined as conversations that involve at least two exchanges between user and agent, not including demographic data.

Once sampling is complete, additional exclusion criteria will be applied in order to ensure conversation relevance to the research question. Conversations that have been tagged as potentially harassing, misusing the program, or attempting to use the program for research purposes by Planned Parenthood Chat/Text agents will be removed from the sample and excluded from analysis. Additionally, only two-way conversations will be included in analysis. For each conversation excluded post-sampling, an additional conversation will be sampled.

2.2 Data Collection and Recruitment

The chat and text conversations that formed this sample occurred in March 2012. They were accessed through the online databases of LivePerson [22] and Mobile Commons [23] websites. As this research did not work with human subjects, there was no additional recruitment process (see 2.6 Ethics).

When a user first logs into chat, or a user first texts in, s/he is asked a series of survey questions. They are, in order:

- A self-selected screen name (chat only): as Planned Parenthood Chat/Text is an anonymous service, chat users are asked to select a screen name for use during Chat. All screen names were removed in the final sample and replaced with the user's study ID.
- Gender: In chat, can choose from girl/woman, boy/man, and transgender. Only those who selected "girl/woman" were included in the final study sample. In text, it is free response in which a user replies by typing his/her gender. Only those who replied with girl, woman, or female were included in the sample.
- Age: In chat, options include age 12 and under, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31-50, or 51 or older. In text, it is free response in

which a user replies by typing his/her age. Only those who selected 15, 16, 17 18, or 19 were included in the final study sample.

- Zip code: user responds with their 5 digit U.S. zip code, if applicable
- Race/ethnicity: can choose from Hispanic/Latino, African-American/Black, White, Asian/Pacific Islander, American Indian/Alaska Native, or Other. Can also select more than one option if applicable. Only those who selected Hispanic/Latino, African-American/Black, or White were included in the final study sample. Those who selected more than one option were not included.
- The main thing s/he would like to chat about (chat) OR their question (text). In chat, one can choose from morning-after-pill (emergency contraception), pregnancy tests, STD testing, birth control, abortion, or other. In text, the question one types is free response. This question did not affect sampling nor was it included in the transcript text.
- How worried s/he is about what s/he is chatting/texting about: can choose from Very worried, Somewhat worried, A little worried, or Not at all worried. This question did not affect sampling nor was it included in the transcript text.

The questions regarding gender, age, and race/ethnicity were used for sampling. Only those who identified as female, ages 15 to 19, and as Hispanic/Latina, African American/Black, or White were included in the sample.

This sampling was completed by the on-site supervisor, who assembled a list of transcripts by the appropriate age, gender, race, and conversation type categories in an excel sheet. The LivePerson database was then searched using the time and date of the transcript to access each transcript. For text message conversations, all transcripts with interactions within 24 hours of each other were compiled into one conversation. During this process, all identifying and demographic information was removed from the conversations, although

conversation type and race remained known. Each conversation was given a study ID, which corresponded to the study ID assigned in the sample excel sheet.

2.3 Data Management

After sampling, conversations were initially be accessed via LivePerson [22] and Mobile Commons [23]. Each conversation was be assigned a study ID and a tracking sheet was created to link the study ID with the original conversation's data. The conversations were then copied to a separate file containing only the study ID and conversation itself, without other demographic data, survey questions, or other identifying data. This will protect participant anonymity and limit researcher bias. The primary research will only work with these final documents during analysis.

All electronic copies of conversations and other study data will be saved on a secure password-protected computer drive. All hard copies will be kept in a locked drawer at the Planned Parenthood Federation of America office.

2.4 Data Analysis

Data organization and analysis will begin by designing a coding framework. Rather than attempting to utilize preexisting theory, the initial coding framework will be informed by discussions with relevant Planned Parenthood Federation of America staff and by a researcher reading through a series of transcripts that are not part of the final sample. This framework will consist of approximately 60 to 70 codes (exact number will vary depending on the content) which will be used to break transcripts down into "text segments." Care will be taken to avoid duplication of codes, although some text segments may fall under more than one code. If during the reading of the sampled transcripts a new code becomes relevant, it will be included in the coding framework.

One researcher will complete coding. If the researcher is uncertain of how to code a text segment, she will consult a second researcher. Data management software will be

utilized to for coding and data analysis [24]. Analysis will be completed in three groups by race/ethnicity: African American (Chat and Text), Hispanic/Latina (Chat and Text), and White (Chat and Text). Once transcripts have been coded, text segments will be reread to identify basic themes. These themes will be grouped into organizing themes and finally global themes. This thematic network will be used to better understand connections between and among the data [25].

2.5 Study Limitations and Reflexivity

The primary researcher is an intern for Planned Parenthood Federation of America who has previous experience working in sexual and reproductive healthcare, including working with adolescents in the United States, and is U.S. American herself. Working in a familiar subject matter is expected to be an asset to this project and is not expected to have any negative effects.

Due to time and resources, this research is only able to examine and compare three racial/ethnic groups. Other racial/ethnic groups, including those who identify as mixed race, are not included in this study. Additionally, users of Planned Parenthood Chat/Text younger than 15 and older than 19 will not be examined and only females within this age group were included. This research is only able to describe the experience of a subset of Chat and Text users, and may not reflect the experience of other users.

Although the anonymity of Planned Parenthood Chat/Text allows users to ask questions privately, it presents some challenges for research. Because there is no way to follow up with the users in this study, it was not possible to perform member checking. Additionally, it is also important to note that all demographic information (race/ethnicity, age, and sex) is self-reported. There is no way to confirm whether all users included in this study's sample reportedly their demographic information accurately. A study that examined the accuracy of self-reported data in using instant messaging found that 5.9% of participants

gave an inaccurate response about their sex and 11.2% gave an inaccurate response about their age [26]. The self-reporting used in Planned Parenthood Chat/Text may or may not be similar. However, this was unavoidable in examining an anonymous program.

Additionally, although anonymity may provide privacy and a comfortable means for discussing potentially embarrassing issues, some express concern that users may also utilize programs such as Chat and Text for pranks and that there is no way to determine whether the conversations are genuine. It seems unlikely that a large enough number of users utilize the program for such a purpose as to affect analysis [27]. In order to curb this, certain types of conversations were excluded from sampling (see exclusion criteria in Section 2.1).

2.6 Ethics

Planned Parenthood Federation of America has provided permission to examine and analyze this data. The original qualitative study protocol was submitted to New York University's IRB and received an exemption for not dealing with Human Subjects (see Appendix). This is a secondary analysis in which the primary researcher has no knowledge of the participants' identities. Users accessed Planned Parenthood Chat/Text of their own accord, anonymously. Therefore, we were unable to contact past users to seek permission for their transcripts' participation in this research.

All chat and text conversations are anonymous. Participants are not asked for any identifying information. Information collected is limited to demographics, including age, gender, race/ethnicity, and zip code. The Planned Parenthood Chat/Text program was not originally intended to be utilized for research purposes. As such, there was no informed consent process asking users to participate in research.

The Planned Parenthood Chat/Text program is used to discuss many sensitive matters around sexuality, health, safety, and relationships. Working with teens may add a level of vulnerability to these already sensitive topics. At times these conversations could become

stressful to users. However, these conversations could also have the benefit of decreasing worry and stress related to users' sexual and reproductive health concerns and validating the feelings of a user, although this is not a guarantee of the program. As users utilized the program voluntarily, we do not feel that the research activities described herein pose any additional harm or risk to participants. All users are offered health center information if they have additional questions or concerns not met by the program, or if an agent feels the referral could be beneficial. Additionally, agents are trained to correct inaccurate information or misconceptions shared by users about sexual and reproductive health.

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4. Appendices

4.1 Budget

Activity	Description	Total Cost
Personnel		
Primary researcher	MPH Student—researcher will not receive any compensation for this analysis. She is pursuing the analysis in order to complete her degree.	R0
Supplies		
Stationery	As nVivo software will be used for analysis of digital text, no stationery should be needed for research. However, any costs of printing for ethics and final submission to UCT will be the student's responsibility.	R100

4.2 Sample

A total of 150 conversations with adolescent females (ages 15-19) were sampled. Below is the breakdown of that sample by race/ethnic group and conversation type.

	Chat	Text	TOTAL
African American	25	25	50
Latina/Hispanic	25	25	50
White	25	25	50
TOTAL	75	75	**150**

Part B: Structured Literature Review

1. Objectives

This literature review aims to inform the Masters thesis, "Qualitative study of the sexual and reproductive health concerns of female adolescents using a new digital media program in the United States." The paper provides a qualitative analysis of conversations with teen girls emerging from the Planned Parenthood Chat/Text program. Planned Parenthood Chat/Text is a new digital media program run by Planned Parenthood Federation of America, comprised of two-way internet chat (instant messaging; hereafter referred to as "chat" or "Chat") and mobile phone text messaging (SMS; hereafter referred to as "text" or "Text") service that educates chatters/texters (hereafter referred to as "users") about sexual and reproductive health (SRH). Specifically, the paper will examine the concerns of adolescent girls ages 15-19 discussed via Planned Parenthood Chat/Text and, more specifically, the differences in those concerns by three racial/ethnic groups: African American, Hispanic/Latina, and White. This literature review focuses on new digital media for adolescents in SRH, as well as the broader scope new digital media interventions that could inform this research. The review focuses on adolescent girls, racial/ethnic group differences, SRH, and chat and/or text as specific types of new digital media when possible.

2. Literature search strategy

Research on new digital media interventions in public health is newly emerging over the last couple of decades. These interventions are rapidly changing as new technologies develop. Because it was anticipated little research would be found on new digital media, SRH, and adolescents, particularly on interventions related to chat/text specifically, and because there is a lack of standardized language for public health new digital media interventions, a broad literature review was conducted. This began with a broad search for health chat and/or text interventions, with no specific exclusion criteria used in searching. Only articles written in

English were included in the literature review as it is the only language the reviewer is proficient in.

The following are search terms that were entered into both PubMed and Ebscohost:

- "Internet chat" OR "Instant messag*" OR chat
- Text messag* OR SMS
- New digital media
- "Health technology" OR "health information technology" OR "health information communication technology"
- "Sexual health" OR "reproductive health" OR "family planning" OR "teen pregnancy" OR STI
- Qualitative methods
- Adolescents OR teens OR youth

Preference was given to papers:

- Utilizing qualitative methods
- With new digital media focusing on SRH
    - Also focusing on adolescents
    - Also focusing on girls/women
    - Also focusing on African American, Hispanic/Latina, or White users specifically
- Examining new digital media interventions that utilized two-way communication
- Examining differences in new digital media use by racial/ethnic group
- With samples in the United States

Additionally, a "hand" search was conducted online of all papers published in the Journal of Medical Internet Research from January 2011 to June 2012 as a way of checking for

additional recent health new digital media developments that may have been missed in the other searches.

After literature was complied, the primary researcher read through the titles, abstracts, and other information as needed to determine relevance to the background, methods, and analysis of the research project. Although no exclusion criteria were used in searching, literature deemed to be irrelevant to the research project were not included in the literature review write up. Reference sections of relevant papers were also scanned for additional sources that may not have been captured in the database searches.

Additional authors were also recommended by an external examiner of this review to be included in the revised version.

3. Summary and interpretation of literature

3.1 Language and terms

There are many terms used to describe programs similar to Planned Parenthood Chat/Text, as reflected in the search terms described above, such as mobile and internet technology, new media, digital media, and information communication technology. In examining the language used in the papers included in this literature review, the definition of "new digital media" by Guse et al (2012) has been chosen as the most appropriate umbrella term that includes chat and text. New digital media specifies digital communication programs that are interactive and user driven. Additionally the use of the word "new" speaks to the constantly evolving nature of such technology [1, 2].

Note that "Latinos" refers to either men or a group of men and women, while "Latinas" refers to women only. The term "Hispanic/Latinas" is used as the default in this review, as the research paper it informs focuses on adolescent girls. Some academic articles refer to only "Hispanics" or "Latinos"/"Latinas." When such articles are described

specifically in the text of this review, the terms used by those authors will be used in text, rather than "Hispanic/Latinas."

3.2 New digital media: a game changer

The appeal of new digital media in SRH is not necessarily its use as a new avenue for services already being delivered through the health system, but its ability to provide a completely new type of health education. In a meeting of new digital media, SRH, and research experts, Allison et al (2012) reports that experts suggest new digital media: "be used as a game changer, rather than a tool to implement what is already being done off-line" [1]. Past research has described the internet specifically as a unique space that facilitates communication anonymously and across large and small geographical differences 24 hours a day, at times when face-to-face interactions may not be available. This can help in decreasing barriers to health information otherwise available through more traditional means [3, 4]. Additionally, it has been documented that health information seekers look not only to professional health websites but to peer-run spaces, such as message boards and social media. While this can be useful for support and can at times provide useful education [5], it is important that professional SRH providers use new digital media to reach clients in online spaces to ensure provision of accurate information.

3.3 Adolescent use of new digital media

One of the main assumptions of the Planned Parenthood Chat/Text program is that using chat and text for SRH education would be acceptable to adolescents. This is partly due to the high utilization of new digital media by adolescents in the United States (U.S.). A survey of U.S. teen girls ages 17-19 found that half used their cell phones at least ten hours per week [6]. Some research has shown that girls text message more than males [7], though Underwood et al (2012) reported no significant difference in the number of text messages sent by female and male participants [8]. In a survey of youth ages 13-24, respondents stated

their most common weekly activity on their cell phones was texting and the second most common on their computers was instant messaging or chatting[9].

Past research has found that utilizing new digital media for health needs, including SRH needs, is a popular method for adolescents. In a 2001 cross-sectional survey of 412 adolescents, Borzekowski found that 31.6% used the internet for sexuality education, with sex acts, birth control and pregnancy being the most common health topics searched for overall [10]. More recently, the Guttmacher Institute reports that the internet is used by more than half of U.S. teens to find health information [11]. A national survey funded by Planned Parenthood Federation of America found that 52% of teens would like to use instant messaging for seeking information if made available on a sexual health website [12]. Several studies have reported strong acceptability by adolescents for a range of new digital media interventions for SRH [13-17]. Adolescents have expressed appreciation for the easy accessibility to health information through new digital media [4, 13, 15]. Additionally, the importance of privacy and confidentiality was one of the most commonly described benefits of using new digital media by adolescents [4, 14, 15, 18-20]. This is no surprise as fears about confidentiality have been cited in the past as barriers to seeking healthcare, suggesting new digital media may serve as a useful bridge into accessing the health system by adolescents who may be too fearful or nervous otherwise [13, 18][20].

Few drawbacks to utilizing new digital media for SRH promotion with adolescents have been reported. Some limitations include one-way text messages being “annoying” and the cost of sending and receiving text messages with personal phones [14, 15]. It is possible that two-way text messaging programs (such as Planned Parenthood Chat/Text) would be considered less “annoying” as they are user initiated, though no specific statistics were found through this review. For internet-based interventions, adolescents in particular preferred something more interactive than a text based website similar to a “text book.” Adolescents

described preference for technology with a *person* on the other end. This reaffirms the need for innovative new digital media that does not duplicate already available services [4, 15].

3.4 Racial and ethnic minorities and new digital media use in the U.S.

Because African American and Hispanic/Latina girls in the U.S. are disproportionately affected by unintended pregnancy and sexually transmitted infections (STIs) as compared to their White counterparts [21, 22], it is important to consider whether new digital media can be used to help improve SRH outcomes and close these gaps. One paper reports that African American and Hispanic/Latina populations are less likely than Whites to have access to internet on a computer [23], although other studies have found little or no difference in internet use between people of different race/ethnicities, including youth [24-26]. For text messaging, studies have shown African Americans and Hispanic/Latinas are more likely to have cell phones and use them for data functions than the U.S. White population [26, 27], although a study of college students found that African Americans were less likely to own a cell phone than their White counterparts [25]. The Pew Hispanic Center's National Survey of Latinos 2009 reported that although fewer Hispanic teens age 16-17 report texting daily than non-Hispanics, texting was reported as being used daily more than other communication mediums, such as meeting in person or speaking on the phone [28]. Additionally, Hispanic/Latinas may not utilize hotline services (such as phone, chat, or text) as often as with their White or African American counterparts due to concerns about whether the service is available in Spanish [29].

Less research has been done on differences in *how* or for what purposes members of these different racial/ethnic groups use new digital media. Reich et al (2012), one of the only studies examining new digital media and Hispanic/Latinos specifically, did not find any differences in use of social media and instant messaging (chat) between Latinos and "European Americans," but also stated that there may not have been statistical power to make

this claim, as only 20% of participants were European American [30]. This study did not examine how text messaging was used and no other studies were found that examined how Hispanic/Latinos use text. A systematic review by Montague et al (2012) makes an important point that historically underserved populations (i.e. women, racial/ethnic minorities, low income groups) may each have their own unique needs in relation to new digital media for health and that it is important to compare groups (such as African Americans and Hispanic/Latinas) to each other and not only to the majority population. Additionally, this systematic review found that of 67 evaluations of new digital media interventions targeting historically underserved populations, 66 papers positively evaluated the intervention studied for reaching these populations in at least one category [31].

The report from ISIS found through quantitative and qualitative methods that certain types of SRH new digital media interventions were more acceptable and popular among young people of color (including African American and Hispanic/Latina youth): a video game (particularly popular with young men), texts about advice on sex and life, and pictures and videos sent to cell phones. One adolescent stated, "It would be cool if you could get the pics when you wanted them, like right when it would make a difference if the condom went on wrong," which would suggest that live, two-way new digital media programs would be desired by adolescents of color in the U.S. However, it is important to note that one of the least popular interventions among this demographic was "texting back and forth with an adult about their sex questions," which seems to be connected with distrust of some adults. The report states that "trust" is very important to youth utilizing new digital media for SRH, suggesting that texting with adults from a trustworthy source—such as Planned Parenthood—may be more acceptable [9].

Although research is limited, new digital media interventions for health are being used to target racial/ethnic minorities. The evaluations that have been done on these

interventions speak to their acceptability and effectiveness in these populations. As there are disparities in racial/ethnic minorities' SRH needs, new digital media may be useful in closing these gaps.

3.5 New digital media as a data collection method

There is a difference between studies that choose to use new digital media for data collection to conduct research on topics unrelated to new digital media—such as using chat to interview participants virtually as opposed to in-person, or distributing a questionnaire through a website—than research that examines data collected through a preexisting new digital media program in order to better understand or evaluate the program. The research paper on Planned Parenthood Chat/Text is the latter, but reviewing papers that are the former can still be helpful for designing research on preexisting programs.

Four studies in this review examined the use of chat solely for data collection [32-35]. The implications of using a chat service that is anonymous (or asks for self-reported demographic information) for research are unclear. As stated by Ayling and Mewse (2009) in a study using chat to interview gay men about their online sex-seeking behavior, anonymity may allow participants to feel more comfortable in sharing personal information and thus increase honesty; however, some researchers are concerned that it may cause the exact opposite phenomenon, because users have the ability to pretend to be someone else [35]. Two papers examined the use of chat for study recruitment. Stieger (2006) found discrepancies in self-reported age (11.2% of participants) and sex (5.9%) during chat recruitment, although Ross (2000) found few differences between a sample of men who have sex with men recruited online and a sample recruited via mail [32, 34]. It is difficult to say whether internet recruitment results in accurate sampling due to the small body of such research. Another potential downside of using chat for data collection is that environmental distractions for the

user that are unapparent to the researcher or agent at the other end of the chat can cause delays in, or abrupt ends to, conversation [35].

Some research has utilized online chat as both a data collection method and to better understand how users engage with each other during chat. Much of this research focuses on chat rooms, in which groups of users chat together, as opposed to one-on-one chat. Relevant to this review is research led by Subrahmanyam (2006), which examines adolescents' interactions with each other in online chat rooms. Although the research examined sexuality specifically, it did not focus on pregnancy, HIV/STIs, medical health generally, or a health intervention for teens. It is important to note that chat rooms where adolescents engage with each other exist in a different context than a one-on-one chat with an adult SRH professional. Subrahmanyam's analysis included a comparison of chat rooms monitored by adults with those that were not. The differences that emerged pertained mainly to the research interests. For example, it was found that youth were more likely to use obscene language or use explicit sexual phrases in unmonitored chat rooms than monitored chat rooms. No examples included pregnancy or STIs [36].

Very little research has used text messaging for data collection. One unique paper by Underwood et al (2012) distributed blackberries to 15 year olds (male and female) in order to analyze the content of their text messages, instant messages, and emails. This study was not focused on SRH or health, but rather more broadly to examine how teens communicate with each other utilizing their blackberries, and also to compare this with their in-person interactions. It was the only paper found that qualitatively analyzed the content of text messaging, through word frequency of certain terms (as opposed to thematic analysis), finding 6.6% of participants had conversations about sexual topics and 7% used vulgar language. Findings showed that teens were likely to use the blackberries supplied by the study as their primary form of digital communication, suggesting this may be a useful means

of data collection for other research. Additionally, self-reports of technology use did not match the actual Blackberry use (determined through monitoring), suggesting self-reporting of technology use may not be as accurate as other data collection methods [8].

3.6 Previous research on effectiveness of new digital media interventions and SRH

This literature review did not identify any published studies that utilized qualitative methods to analyze chat or text transcripts of adolescents (male or female) related to SRH.

There was only one paper found that utilized qualitative methods to analyze chat transcripts related to healthcare. This paper, by Rhodes (2010), was part of a larger study examining and evaluating CyBER/M4M, an HIV prevention program targeting men who have sex with men (MSM) in North Carolina, U.S. All participants were male, most identified as gay, and a range of race/ethnicities and ages were represented. This intervention recruited participants through online chat rooms. Chat rooms differ from the Planned Parenthood Chat/Text program in that they are comprised of multiple users engaged in conversation together, as opposed to a one-on-one conversation. However, the site on which CyBER/M4M was used also allowed for private (one-on-one) chat, which can be initiated by users already interacting in chat rooms. Rhodes' qualitative study examined transcripts both from the "public" chat rooms and private chats between users and CyBER/M4M educators (this distinction proved important because analysis revealed differences between the "public" chat room conversations and the private chats). The analysis used grounded theory to generate themes that arose from all users, rather than examining differences by race or age. Thirteen themes were generated regarding user motivations (e.g. looking for male sexual partners), prevention needs (e.g. perceived lack of HIV resources for MSM specifically), and reactions to the intervention (e.g. the need for intervention agents to adhere to online community culture in chatting). This study provides useful insight into how an HIV

prevention intervention might be perceived in online settings such as public and private chats, although it is unclear how the findings may or may not apply to other populations [37].

Due to the lack of qualitative research on chat or text transcripts, two qualitative library science studies on chat were also examined for methodological purposes, one of which provided a quantitative and qualitative coding guide for evaluating customer service and the other of which used grounded theory to analyze chat transcripts [38, 39]. These were useful for the research team to consider how to approach the task of analyzing transcripts generated from a pre-existing program unrelated to research, even though these studies were unrelated to health or adolescents and did not examine differences by racial/ethnic group. They helped provide a starting point, along with Rhodes et al (2012), for how to look at the Planned Parenthood Chat/Text transcripts [37].

It is important to note that although there is a dearth of *qualitative* research on chat or text transcripts related to SRH, other types of studies have examined SRH chat and/or text interventions, including studies with youth in particular, in addition to the aforementioned studies examining acceptability. Some studies focusing on health unrelated to SRH were still included in this review if the findings were relevant to understanding new digital media interventions as a whole.

Of the papers examined in this review, four served to simply describe current digital media programs, one for diabetes and three for SRH [19, 40-42]. These papers could be helpful for those seeking to create a new intervention and help document that new digital media is being used successfully to reach adolescents about health. They provide insight on how interventions are received differently depending on the medium—for example, one paper describes feedback from adolescents that a social media website intervention for STI prevention was not as appealing as more confidential options for communication [19]. Two other studies also reported on the positive effects of one-way educational text messaging to

increase sexual health knowledge in participants as compared to baseline or a control group [17, 43].

There are a series of papers that provide encouraging information about behavior change resulting from new digital media in SRH although, again, there is little research on this topic. A review by Cole-Lewis (2010) reported that eight out of nine RCTs found new digital media interventions to be effective on the short-term for disease prevention or management, although these were not STIs, HIV, or otherwise SRH related [44]. However, these findings may suggest new digital media could also be useful in STI and HIV management and prevention. Castaño (2012) found positive effects of using text messaging to remind youth ages 13 to 25 to take birth control. This effect was stronger while the intervention was ongoing and slightly higher in African Americans and Whites than Latinas [45]. Two studies found increased STI testing in women receiving a one-way text messaging intervention [17, 43]. However, one of these studies, by Lim et al (2012) also found that there was no difference in condom use from the intervention. Although there were several instances here of behavior change studies with *text* programs, no studies were found from the U.S. that examined health behavior change and *chat* interventions.

A less successful outcome was found by Katz et al (2012) in a study that examined subsequent pregnancies in pregnant teens receiving a phone counseling intervention. The intervention did not see a difference in subsequent pregnancies as compared to the control group, although a protective effect was seen in teens ages 15-17 who received more frequent calls. The authors suggest that because phone counseling has been found to be useful for other health issues, phone interventions may be most effective for "less complex" issues than pregnancy [46]. No comparable studies were found that utilized chat or text, so a comparison of different types of new digital media for this purpose was not possible.

Overall, the literature supports further use of new digital media for SRH interventions as there is support for these programs, particularly from adolescents. However, more research is needed to understand how they are being used and whether they affect behavior in the real world. Some limitations cited by these studies include lack of long periods of follow up time [2] and issues of intervention delivery if a participant's technology (a mobile phone, for example) is lost or stolen [44]. The latter would likely be less of an issue in studies examining patient initiated, two-way interventions (such as Planned Parenthood Chat/Text) than one-way interventions, but should be taken into consideration as a potential barrier to accessing the service.

4. Identification of gaps or needs for further research.

There are notable gaps in the current literature available on new digital media and SRH. The most robust information available was regarding frequency of use and acceptability. Although there are not a large number of studies regarding new digital media and SRH (with even fewer examining adolescents, African Americans, Hispanic/Latinas, Whites, and/or women specifically), the studies found do suggest that such interventions are acceptable. Very little information exists currently about evaluations of these interventions or about *how* new digital media is being used.

From the search, the primary researcher was unable to find a previous study that seeks to use qualitative methods on chat and/or text transcripts from a SRH intervention with a focus on adolescent girls. Additionally, the literature on how members of different racial/ethnic groups utilize new digital media is almost non-existent. The paper most similar to the impending Planned Parenthood Chat/Text study is Rhodes' (2010) use of grounded theory to examine chat room transcripts [37]. Although this was also a SRH intervention, it

focused on HIV/AIDS only. Additionally, the study participants were all male and were not limited to adolescents.

For the purposes of this master's thesis, this literature review did not include a review of possible theoretical frameworks to be applied during qualitative analysis of new digital media. This is largely due to the decision to create a coding framework based on conversations generated through the Planned Parenthood Chat/Text program, based on grounded theory.

It appears that a combination of data collection through an existing new digital media intervention comprised of chat and/or text *and* an exploration/examination of the same intervention in one paper is very scarcely represented in the current literature. In order to generate transcripts for qualitative analysis, the interventions being researched would need to be based in two-way communication. The majority of studies found through this review examined one-way communication, which does not generate transcripts from users. It will be important for two-way communication to be further examined—including its acceptability, use, and effectiveness—as such interventions become more popular as a SRH communication tool. Although the means of delivery, through text and online methods, are similar between some one-way and two-way communication interventions, the experience of each type of intervention has the potential to be completely different. Two-way communication is user initiated, allows for users to clarify, question, and expand upon messages received, and provides near-immediate answers to users, whereas one-way communication is program initiated and does not allow for interaction of any kind. Overall, there is little research on new digital media and SRH, but even *less* on two-way communication interventions. The qualitative research on Planned Parenthood Chat/Text will be one of the first studies of its kind, and, to the knowledge of the research team, the first study utilizing qualitative methods on chat/text SRH intervention transcripts with female adolescents as study participants.

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Part C: Journal "Ready" Manuscript

Qualitative study of the sexual and reproductive health concerns of female adolescents using a new digital media program in the United States.[1]

ABSTRACT

PURPOSE African American and Hispanic/Latina adolescent girls in the U.S. experience significantly higher STI and pregnancy rates than White Americans. Literature suggests that two-way new digital media could be an acceptable sexual and reproductive health (SRH) education resource for adolescents of different racial/ethnic backgrounds. This study utilized qualitative methods to explore how the concerns of female adolescents using Planned Parenthood Chat/Text vary by racial/ethnic group.

METHODS Purposive sampling yielded 150 chat and text conversations from African American, Hispanic/Latina, and White female adolescents (ages 15-19) from March 2012. A coding framework was constructed prior to analysis, adjusted after a coding pilot, and developed throughout analysis. Conversations were coded utilizing nVivo 10 software.

RESULTS Themes were synthesized from the coded text segments using principles of thematic analysis. Conversations were analyzed in their entirety and by racial/ethnic group. Although there were few differences by racial/ethnic group, some differences emerged in the global themes of basic information about SRH and healthcare access, particularly around emergency contraception, menstruation, risk behaviors, privacy, and costs.

DISCUSSION These results reflect some known health disparities by racial/ethnic group in the U.S. and how they can be addressed through Planned Parenthood Chat/Text. The program was seen as an appropriate SRH resource for adolescents of all racial/ethnic backgrounds. More research is needed to develop a body of qualitative literature on new digital media programs for SRH and the implications of these findings for female adolescents.

[1] Manuscript prepared as an original article for the Journal of Adolescent Health (JAH). Variations from JAH requirements include reference to Appendices and embedded tables. See Appendix 6 for full JAH requirements.

KEY WORDS: Adolescent, New digital media, Reproductive health, Internet, Short Message Service, Technology

IMPLICATIONS AND CONTRIBUTION

To the knowledge of the research team, this is the first piece of research to be published in a peer-reviewed journal utilizing qualitative methods to analyze transcripts from adolescent girls utilizing a chat or text program for sexual and reproductive health education.

INTRODUCTION

Background

Statistics on adolescents' sexual and reproductive health (SRH) in the United States (U.S.) reveal the need for increased access to information and services. Teens and young adults ages 15-24 make up almost half of all new sexually transmitted infections (STIs) in the U.S. per year despite representing only a quarter of the population at risk [1]. Although the teen pregnancy rate has dropped by 44% since 1990, the U.S. continues to have a higher rate than most developed countries [2]. As of 2006, 82% of teen (ages 15-19) pregnancies were unintended [3]. There are also disparities in SRH by racial/ethnic group. In 2010, the chlamydia rate for African American female teens was 6.6 times the rate for Whites, and the rate for Hispanics was almost 3 times that of Whites [4]. Additionally, the average teen pregnancy rate is significantly higher among African American and Hispanic/Latina teens than White teens [5].

Only 22 of the 50 states require that sexuality education be taught in schools [6], though 95% of teens receive sexuality education through programs at school, church, or in the community [7]. However, the teaching may deliver inaccurate information or use ineffective techniques as the majority of curriculums are based on "abstinence-only"

education, which research has shown to have many limitations [6-8]. Some research suggests increasing SRH knowledge in minority adolescents may result in better health outcomes, such as more effective contraception use [9]. Additionally, a recent survey by Planned Parenthood Federation of America (PPFA) found that only 17.5% of teens felt very comfortable talking about sexuality with their parents [10]. Adolescents may not seek SRH information until faced with an urgent health moment, such as needing emergency contraception (EC), at which time traditional education may not be available. Due to confidentiality concerns, adolescents may not feel comfortable seeking information through teachers or parents and may also avoid seeking health services [11].

New digital media—defined as interactive and user-driven digital technology programs [12]—may help reach adolescents during urgent SRH moments. Additionally, new digital media could be useful for engaging with the historically underserved African American and Hispanic/Latina populations in the U.S [13-15]. A formal literature review conducted by the primary researcher found that, although some research has examined the value and uptake of various types of new digital media in SRH, very little research has been done on interactive programs that facilitate *two-way* SRH communication. Most research has examined one-way communication, such as websites, or text message (SMS) services in which providers send information without immediate, or any, interaction or return messages from users. Behavior studies have reported positive effects of using one-way text messaging to remind patients to take birth control pills and increase STI testing [16, 17]. However, these programs have limitations, such as the lack of tailored messaging and the potential for mobile phones to be lost or stolen [16, 18].

To the knowledge of the research team, only Rhodes et al (2010) has utilized qualitative methods to examine a two-way new digital media for SRH. The study analyzed conversations from a chat room-based HIV/AIDS intervention for men who have sex with

men (MSM), providing insight into how a two-way HIV/AIDS intervention could be received positively by users in private or public chat. These findings may not be transferable to non-MSM study population beyond the topic of HIV/AIDS and did not examine racial/ethnic differences [19]. Notably, no prior published papers were found that utilized qualitative methods to analyze chat or text conversations with adolescent girls generated by a SRH program.

Although current research is limited, there is reason to believe that two-way new digital media programs can assist in meeting female adolescents' SRH needs. New digital media is used and accepted widely by adolescent girls across race/ethnicities for a range of purposes, including SRH needs, due to the ease of access and the anonymity many programs provide [20-24]. Two-way communication allows for adolescents to clarify and ask about issues specific to their situations discretely, providing an appealing supplement to in-person sexuality education.

Study Purpose

In September 2010, PPFA launched Planned Parenthood Chat/Text, a two-way SRH new digital media program. This study utilizes qualitative methods to better understand how the program is being used by female adolescents (ages 15-19). Analysis was disaggregated along racial/ethnic group, due to disparities in SRH among African American, Hispanic/Latina and White adolescents and to explore how users' SRH concerns may vary by racial/ethnic group.

Planned Parenthood Chat/Text

Planned Parenthood Chat/Text allows users to interact with an agent trained to respond to SRH enquiries either through chat (online instant messaging, through plannedparenthood.org) or text (text message, or SMS, by cell phone). The user's initial question serves as a starting point for agents to provide SRH information and referrals, as

well as to correct any misinformation or misconceptions the user may share. Although accessible to all with internet or cell phone access, the majority of Planned Parenthood Chat/Text users self-identified as White in March 2012 (Table 1). However, a goal of the program is to target African American and Hispanic/Latina women ages 15 to 24, due to the known health disparities of those groups.

Table 1. Characteristics for all Planned Parenthood Chat/Text users in March 2012 (self-reported by users; response rate not 100%)

	N	%
Total	8,692	100
Race/Ethnicity		
African American	1301	15.5
Hispanic/Latina	1642	19.6
White	4038	42.8
Conversation Type		
Chat	7588	87.3
Text	1104	12.7
Age		
14 or younger	314	3.7
15-19	3650	42.8
20-24	2670	31.3
25-29	1049	12.3
30 or older	846	9.9

The program was founded on three assumptions that Planned Parenthood Chat/Text would: 1) be acceptable to youth; 2) be accessible in urgent SRH moments; and 3) decrease users' worry.

From March 2012, agents were asked to track the main topic of each conversation in broad categories (abortion, birth control, emergency contraception, pregnancy tests, STD testing, and other). However, these broad categories do not encompass detail, such as emotions or concerns regarding confidentiality or the cost of services, creating gaps in understanding how the program is being used. Qualitative methods were selected as a way to add depth to these monthly statistics, in order to better understand how the concerns of female adolescents utilizing Planned Parenthood Chat/Text differ by racial/ethnic group.

METHODS

Ethics

The research protocol was approved by the University of Cape Town institutional review board (IRB) and granted an exemption by the New York University IRB, as the study did not work with human subjects. Previous researchers have concluded that new digital media can be examined without informed consent if the content is anonymous [25, 26]. Planned Parenthood Chat/Text is an anonymous program in which no identifying information is requested of users beyond self-reported demographic survey information. Any identifying information that a user may have shared was removed from the conversations prior to coding and analysis. Each participant was assigned a unique study identifier and pseudonyms are used in the reporting of results. Some misspellings were corrected in direct quotes, although no content of the transcripts was changed in presentation of results.

Sampling and participants

The purposive sample[2] included 150 conversations from female teens (ages 15-19) from March 2012 (Table 2 for details).

Table 2. Study sample characteristics

	N	%
Race/Ethnicity		
African American	50	33.3
Hispanic/Latina	50	33.3
White	50	33.3
Conversation Type		
Chat	75	50
Text	75	50
Age		
15	14	9.33
16	26	17.33
17	43	28.67
18	36	24
19	31	20.67

[2] See Appendix 1 for detailed explanation of sampling strategy

Data collection

For the purposes of this study, data will be referred to as "conversations" rather than "transcripts." Chat and text interactions are at times disjointed; a text conversation may take place periodically over several hours or days. Text conversations were defined as at least two two-way communications between a user and one or more agents with no more than 24 hours lapsing between exchanges, sampled from Mobile Commons online reports.[27] Chat conversations were sampled from LivePerson online reports and defined as at least two two-way communications between a user and an agent, until the agent ended the chat [28]. Conversations were excluded from the sample if the user: 1) utilized the program for research purposes only, 2) identified that she was a PPFA employee testing the service or not a female teen, or 3) asked a question on behalf of a female teen but did not identify as a female teen themselves. Although Planned Parenthood Chat/Text is not limited to U.S. use, only conversations with users identifying a U.S. zip code were sampled. Chat is advertised through a link on the PPFA website and text has been advertised at public events, on television commercials, and through health centers.

Data analysis

Analysis used thematic networks as detailed by Attride-Stirling, beginning with coding and followed by the creation of a non-hierarchical network of basic, organizing, and global themes [29]. A coding framework was constructed before sampling by speaking with PPFA staff and examining conversations not included in the final sample. After a coding pilot of 20 conversations, the framework was adjusted to include additional codes as necessary and to resolve lack of clarity in existing code definitions, resulting in a final framework of 60 codes.

Two rounds of coding were completed by the primary researcher after the pilot. Coding was regularly discussed between members of the research team to obtain conceptual

alignment on existing and emerging codes, and to enhance internal validity. Coding was managed with nVivo 10 software [30]. The primary researcher used the nVivo text segment outputs to synthesize basic themes, which were sorted into organizing themes, and then global themes. Themes were then examined for differences by racial/ethnic group.

RESULTS

Overall, seven global themes emerged from the thematic analysis. Table 3 lists the global themes and a summary of the organizing and basic themes that varied by racial/ethnic group.

Seeking basic information regarding SRH

Questions regarding basic information about SRH comprised the most organizing and basic themes. The following are organizing themes that exhibited a notable difference by racial/ethnic group.

Emergency contraception

Conversations about emergency contraception (EC) included when to take EC, its side effects, and effectiveness. Notably, no African American adolescents accessed the program to ask about EC. There were five participants who were still in the five day window period to take EC, but were unaware EC was an option for them, four of which were African American.

> "*i just did it today with no condom my first time how much would it be for an abortion if im pregnant*" –Jane (18-year-old, African American, via Text)

All unknowing candidates for EC were offered information about EC and how to access it. Additionally, more African American teens in the sample asked about abortion care than their Latina and White counterparts. The amount of conversations regarding hormonal contraception was similar across groups.

Table 3. Emerging themes and variations by racial/ethnic group

Global Theme	Organizing Theme*	Basic Theme
Notable differences by race/ethnicity:		
Concerns about accessing healthcare	○ Cost of health services	• Cost as a barrier to care Cost of abortion • Cost of emergency contraception • Cost of hormonal birth control • Cost of pregnancy testing • Insurance coverage
	○ Parents and privacy as barriers to care	• Does not want to use insurance due to concern about privacy • Fear of being kicked out by parents • Wants privacy from parents about health services • Wants privacy from parents about sexual activity • Whether parental consent is required for abortion • Whether parental notification is required for health services teens receive
Seeking basic information regarding SRH	○ Abortion	• Abortion care
	○ Emergency contraception (EC)	• Effectiveness of EC • Side Effects of EC • Unknowing candidates for EC • When/how to take EC
	○ Menstruation	• General menstruation information • Menstruation and fertility • Menstruation and pregnancy
	○ Pregnancy	• Pregnancy desire
	○ Sexual behavior and risk	• Having protected sex • Having unprotected sex • Withdrawal
*Organizing themes only listed if exemplary of differences by racial/ethnic background		
No notable differences by race/ethnicity:		
Concerns unrelated to SRH		
Evaluation and impact of Chat/Text		
Expression of worry		
Knowledge of SRH		
Understanding sex and sexuality		

Menstruation

Concerns regarding menstruation were shared by participants of all racial/ethnic groups. However, more Hispanic/Latina women in the sample discussed these concerns, particularly regarding whether it is possible to become pregnant while menstruating and whether it is possible to be pregnant despite continuing to menstruate.

"*If you have sex on your period can you still get pregnant?"* –Wanda (18-year-old, Latina, via Text)

Pregnancy desire

Overall, most adolescents were trying to prevent pregnancy.

"*I'm scared of taking a pregnancy test. I just don't Want to see any results if it is positive*" –Karen (17-year-old, White, via Text)

"*Thank you for the information you have given me. I will take the test as soon as possible. And if my result says i am not pregnant, I will make sure to get on birth control*." –Wendy (15-year-old, Latina via Text)

However, three African American and six Hispanic/Latina adolescents explicitly stated that they were seeking to become pregnant. Most of these girls were older (18-19 years old).

"*I wanna be pregnant…im out of school and i am graduating…and now i wanna start a family of my own*" –Letisha (18-year-old, African American, via Text)

"*I stopped taking my birth control in december because i want to have a baby*." –Laura (18-year-old, Latina, via Chat)

Furthermore, some of these adolescents were seeking advice and information on how to become pregnant.

"*okay so when will be the best time for me and my partner to actually have sex and be able to conceive?"*—Becca (19-year old, African American, via Chat)

Sexual behavior and risk

Teens in the sample reported concerns about various types of sexual behavior. More African American and Hispanic/Latina adolescents shared concerns about unprotected sex (including failed birth control) than Whites, while more White teens shared concerns about the withdrawal method or protected sex than their African American and Latina counterparts.

"*k so 20 days ago me and my boyfriend had unprotected sex 13 days before my missed period and he ejaculated inside me and im on no birth control*" –Mia (17-year-old, Latina, via Text)

"*a condom was used both times and it did not break, we checked it afterwards, and we used the withdrawal method even with the condom… i just feel like with my luck, even though im being extra safe i could be 2 of those 100 people that get pregnant if they always use condoms correctly*" –Julia (16-year-old, White, via Chat)

Concerns about accessing healthcare

Analysis revealed healthcare access was a major concern for the participants overall. Differences by racial/ethnic group emerged in concerns about privacy and the cost of services.

Parents and privacy as barriers to care

Privacy from parents was a common theme among participants of all racial/ethnic groups, including concerns about parental consent or notification requirements for adolescents seeking health services and parents' knowledge of their sexual activity. However, more White adolescents asked about privacy concerns than African American and Hispanic/Latina adolescents.

"*all this has been making me stressed because me and my boyfriend cannot have a kid our parents would kick us out. so i really hope im not pregnant. And thanks, youve been very helpful*" –Julia (16-year-old, White, via Chat)

"im pretty sure i have something but im scared to get tested [for STIs], im only 17 and i don't want to tell my mom because she is very old fashion but i dont know what to do" –Nancy (17-year-old, Latina, via Chat)

All privacy concerns voiced by the sample were limited to a desire for privacy from parents, with no questions about privacy from partners, friends, or other individuals.

Cost of health services

Cost of health services was one of the most frequently discussed concerns overall. Fewer Hispanic/Latina adolescents asked about costs than their White and African American counterparts. Only one Hispanic/Latina teen expressed that costs would prevent her from receiving services, while several White and African American adolescents expressed this concern. African American and Latina adolescents were more likely to ask about how to use health insurance or what to do if uninsured, while only White teens shared concerns about *choosing* to not use insurance due to privacy concerns.

"*I need a test for clamydia but I dont have a way to pay for it what should I do. I have no way to get any money im not a student and not working*" –Tanya (18-year-old, African American, via Text)

"Okay I feel like this is the best procedure but I'm unsure if my insurance would cover it... How much would the [abortion] pill cost without insurance?" –Georgia (19-year-old, Latina, via Chat)

"*MY mom has asked her doctor about birth control and she said it is quite expensive which is why im not on it*" –Lilly (17-year-old, White, via Chat)

DISCUSSION

This analysis provides insight on how the concerns of female adolescents accessing Planned Parenthood Chat/Text vary by racial/ethnic group. Although most themes generated by this research were similar by racial/ethnic group, such as using the program for emotional support, navigating the health system, and better understanding the bodies and rights of users and their partners (Table 3), the variations that did emerge reflect some of the SRH disparities by race/ethnicity in the U.S. More African Americans discussed abortion than White and Hispanic/Latina participants, which may reflect both the higher national teen pregnancy rate (121.6 vs. 44.8 per 1000 in Whites) and abortion rate (43.4 vs. 10.4 per 1000) in African American adolescents [31]. The high teen pregnancy rate in Hispanic/Latina adolescents (111.5 per 1000) seems to have manifested differently, in questions regarding irregular menstruation as a symptom of pregnancy and fertility throughout the menstrual cycle [31].

Of particular note is the absence of questions from African American adolescents about EC in this sample—particularly because agents were able to identify instances in which African American participants had had unprotected sex in the previous five days and were seeking to prevent pregnancy, but did not realize EC was an option. This may reflect a lack of EC awareness in African American teens. Little recent data is available on adolescent knowledge of EC by racial/ethnic group, although one qualitative study from Philadelphia found there were notable gaps in EC knowledge in their sample of African American girls [32]. Planned Parenthood Chat/Text's two-way communication allows agents to screen users to determine EC eligibility, which may make the program more effective in improving EC knowledge and access than one-way new digital media, such as websites, that cannot engage with users on a detailed interactive level.

The higher number of African American and Hispanic/Latina teens reporting having had unprotected sex may also reflect the significantly higher rate of STIs in these groups [4].

Yet, STIs were one of the least discussed health topics in the sample overall and there was no difference by racial/ethnic group. There may be a gap in effectively reaching adolescents through Planned Parenthood Chat/Text on this issue. Agents may feel bringing up the topic of STIs would be interpreted as offensive to the user due to the stigma of STIs, which has been previously found to be a barrier to seeking care [33].

The data reveals that White adolescents may feel more stigmatized by pregnancy than minorities in the United States, as cited in other studies [34]. It is possible that more pregnancy stigma in the White community is partly why more White participants expressed concern about privacy from parents as well as low risk behaviors such as protected sex, and why all adolescents seeking pregnancy were African American or Hispanic/Latina.

Additionally, the overall frequency of discussions about privacy and cost in the sample speaks to how these themes are linked—few adolescents of any racial/ethnic group are financially independent, and many rely on their families for health insurance or payments. Because many adolescents in the sample preferred to keep their sexual activity and health private from their parents, they may feel unable to ask their parents' help in paying for SRH services.

Although many participants from all racial/ethnic groups expressed fear about talking with their parents about SRH, most shared their experiences and questions with Planned Parenthood Chat/Text agents openly, making the program a valuable resource for accurate SRH information and a bridge into seeking health services in-person. In a national survey, the overwhelming majority of both teens and parents supported having sexuality education in high schools, suggesting that both groups might also support education through new digital media when managed by SRH experts [10].

Limitations

This study has limitations. Users of new digital media, adolescents in particular, often use slang or abbreviations, or have difficulty with spelling and typing which can cause confusion in interpretation. Additionally, agents are not researchers, and clarifying questions that may have helped to answer research questions were not always asked of users (although agents do ask clarifying questions to best serve the users' needs when necessary). Because participants were anonymous, it was not possible to contact them for member checking or follow-up.

Because all demographic information was self-reported, it is difficult to say what impact anonymity may have had on this research. Ayling and Mewse (2009) suggest that anonymity in chat may allow participants to feel more comfortable in sharing personal information and thus increase honesty and validity in research; however, some researchers have expressed concern that users may rather pretend to be someone else or be dishonest in supplying demographic information [35, 36].

This research focused on a small subset of Planned Parenthood Chat/Text users, examining only adolescent women ages 15 to 19 who identified as African American, Hispanic/Latina, or White. While this project may be externally valid for similar women in the U.S., further research would be needed to understand the concerns of other women and men.

Conclusion

Two-way chat or text programs such as Planned Parenthood Chat/Text offer anonymous, immediate engagement, and allow for clarification of personal SRH circumstances that one-way new digital media, such as websites, are not able to offer. This study provides a starting point for understanding the use of Planned Parenthood Chat/Text by female adolescents in different racial/ethnic groups. Racial/ethnic disparities in pregnancy were reflected in the findings, although it is notable that African American and

Hispanic/Latina users did not ask many questions regarding STIs, despite being part of a high risk population. The findings show how interactions through Planned Parenthood Chat/Text can be used to address SRH disparities; for example, agents' ability to identify candidates for EC, most of whom were African American, would not have been possible without the two-way communication of the program. More research is needed to develop a body of qualitative literature on new digital media for SRH to better understand the potential impact of such programs for female adolescents. However, these results suggest that female adolescents use Planned Parenthood Chat/Text in ways that seem to reflect known differences in SRH needs by racial/ethnic group, particularly through concerns about pregnancy prevention, stigma, and privacy.

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Part D: Appendices

Appendix 1: Sampling Procedure

- Two Microsoft Excel spreadsheets were generated from LivePerson and Mobile Commons by a co-investigator at Planned Parenthood Federation of America—one for chat and one for text. Each lists only information for conversations from March 2012 with women ages 15-19 who listed their race/ethnicity as African American/Black, Hispanic/Latina, or White and provided a U.S. zip code. All other information (i.e. answers to other demographic/survey questions) was removed before the spreadsheets were handed over to the primary researcher.
- The first 25 conversations were selected from each racial/ethnic category in chat as well as the first 25 of each in text.
- Each eligible transcript was identified through the LivePerson or Mobile Commons websites by logging in securely and searching for the date and time of each conversation from the spreadsheets. Each conversation was copy and pasted into a separate word document and saved as a PDF. The word document was labeled by the assigned study ID.
    - Please note, a conversation is defined as follows: Text: a series of two-way communications between a single user and one or more agents with no more than 24 hours lapsing between exchanges. Chat: a single two-way exchange between a user and an agent, as defined by the agent.
    - If survey questions were part of the conversation, they were be deleted upon pasting into the document.
- List 1 of exclusion (see below) criteria was applied before transcripts were copied into word documents. List 2 (see below) was applied during the first reading of each transcript by examining the agents' final message to the user.

- Every transcript to be excluded (see List 1 and List 2) was marked in the excel file with a yellow highlight. Those to be included were highlighted green once they had been assigned a study ID and copied and pasted into a word document.
    - If a transcript was excluded, an additional transcript was added in its place. This process continued until there were 25 transcripts in each category.

List 1: Exclusion criteria

- Identification in conversation that the user is a PPFA employee testing the service
- Identification in conversation that the user is asking a question on behalf of another party, even if the other party is a female teen
- A conversation that does not include at least two exchanges of two-way communication (not including demographic/survey information, or a greeting/goodbye that does not include other information)
- If a reading of the text reveals that a user is not female, age 15-19, or not residing in the US.

List 2: Chat/Text agent ending messages that exclude a conversation from a sample

- "*I'd like to be as helpful as possible, but we can't help with research on this chat line because there are other people with health problems and concerns waiting to chat. I'd recommend you check out the rest of our website to read information that may be helpful. Good luck with your project.*"
- "*This hotline is for answering questions about certain health topics. It sounds like you're not talking about something we cover on this line, so I'm going to end the chat now.*"
- "*Unfortunately, I don't have any more information on that topic. I encourage you to call your nearest Planned Parenthood health center to ask about that. Since I don't have any more information about that, I'm going to have to end the chat now.*"

Appendix 2: Coding Framework

NAME	CODE	DEFINITION
EMOTIONAL NEEDS		
1. Expression urgency/distress	Emo.urgent	Includes expressions of negative emotion around their concern (i.e. fear, panic, worry). Also includes expressions of urgency that may not be otherwise identified by a feeling word. For example, expressing a need to have the information immediately or now. When possible, the coder should also include information regarding what evoked a distressful emotion.
2. Discussion of beliefs	Emo.beliefs	Includes any conversation about how moral, ethical, spiritual, or religious beliefs influence health decision making or feelings around health decisions that are made.
EVALUATION OF CHAT/TEXT		
3. Evaluation +	Eval +	Includes anything related to a positive evaluation of Chat/Text by a user. Does not include "thank you" when used in politeness (i.e. Agent: "Is there anything else I can help you with?" User: "No, thank you." This would not be included).
4. Ramping +	Ramp +	A positive reaction to ramping by a user
5. Ramping --	Ramp --	A negative reaction to ramping by a user
PRIVACY		
6. Privacy from parents/family	Priv.fam	Includes any conversation about a topic which a user expresses she would not wish to share with her parents. This is separate from pressure or perceived pressure from a family member to make a specific health decision. If a user expresses this is the purpose for wanting privacy "Privacy from parents/family" and "Lack of support" should be coded.
CONSENT AND RIGHTS		
7. Consent and rights in health services	Rights	Includes any conversation regarding a teen's right to make choices about her body and health, related to or regardless of her age. This could include explanations regarding health services (including birth control, exams, STI/HIV testing, EC, pregnancy testing) that do not require parental/partner consent. This also includes conversations about teens' rights to make their own health decisions regardless of others' opinion, pressure, or recommendation. Includes legal concerns, such as questions regarding whether parental consent is required for a teen to get an abortion, avoiding parental consent through judicial bypass or going out of state, and navigating other specifics and processes around parental consent requirements. Do not include questions about adoption law here (see "Adoption") or about the legal implications of having an age difference between partners (see "Age

		difference").
8. Reproductive Coercion	RC	Includes outside pressure to not use a birth control method or a threat or instance of tampering with a birth control method by a partner to make it less effective. Also includes "pregnancy pressure"-- coercion regarding a user's pregnancy options (i.e. pressure to continue the pregnancy OR have an abortion). Does not include a partner's refusal to wear a condom—see "Sexual coercion"
9. Rights (Other)	Rights.other	Questions regarding teen rights unrelated to health services or reproductive coercion.
PARTNERSHIPS		
10. Communication -	Comm -	Distinct from privacy, this theme captures a situation in which a user expresses difficulty in communicating with her partner or family member about sexual health. This also includes instances in which she expresses concerns that her partner is not communicating or being truthful with her. This includes withheld information regarding sexual health (such as HIV status, or whether a condom was used).
11. Communication +	Comm +	Includes instances in which a user describes a positive communication with a partner (this is separate from "Assistance from partner" in that it focuses on communication which may or may not impact healthcare access; if both apply, both can be coded) or a desire to have a discussion with a parent or partner.
12. Age difference	Age.diff	Any discussion of a partnership (particularly one that involves the user) in which there is a discussion and an age difference between partners. This includes any situation in which a user raises an age difference, regardless of whether the "concern" is expressed by the user or by the agent or if there is no "concern" expressed.
13. Non-monogamy	Non.monog	Could include any discussion around multiple, concurrent partners—either that the user has multiple, concurrent partners or concern/suspicion/knowledge that her partner does.
KNOWLEDGE/INFO		
14. Knowledge/info: Misconceptions	Know Misc	Could refer to ANY incorrect information shared by a user about sexual/reproductive health. This could include, but is not limited to a self-diagnosis (i.e. a user who says "I am pregnant" but has not had a positive pregnancy test result, but not one who says she only *thinks* she is pregnant), thinking that emergency contraception (EC) causes abortion or is the abortion pill, or thinking she is pregnant when she is actually in the window period for EC.
15. Knowledge/info have	Know have	Includes sharing of actual (i.e. correct and true) knowledge regarding sexual and reproductive health

16. Knowledge/info source	Know source	Any instance in which a user shares the knowledge source (i.e. family member, friend, internet, medical provider) of their information. This is regardless of whether their information is correct ("know have") or incorrect ("know misc")
17. Pregnancy test/abortion vs. emergency contraception eligibility	Know EC	Any conversation in which a user is concerned about taking a pregnancy test or getting an abortion when she is actually within the window period take EC at the time of the conversation.
COST		
18. Cost of health services	Cost	Including, but not limited to, the abortion pill, in clinic abortion, pregnancy tests, EC, STI/HIV testing, and birth control. This refers to questions simply regarding the cost of a service. Can also include concerns about cost as a barrier to care, cost as barrier to a preferred product or service, or cost as a reflection of quality.
19. Discounts	Discounts	Any conversation asking about or leading to information regarding discounts and discount eligibility for health services for those who are uninsured or choosing to not use their insurance. Includes discussions regarding the sliding fee scale, special discounts for teens, payment plans.
20. Using insurance	Insurance	Includes any concern about whether insurance can be used or covers a health services. Also includes concerns about using a parent's insurance plan—for example, whether the child is covered or whether the service is still confidential.
ACCESS		
21. Navigating the health system	Navigating	Includes any questions regarding the basic "how to"s of receiving healthcare: how to make an appointment, how to get access to medication, how to make a payment, etc. Also includes questions regarding whether an appointment is needed, if a particular service is available on a walk-in basis, where clinics are, what phone number to call, those requesting to make an appointment through Chat/Text, etc. This may speak to the fact that teens are often following these processes for the first time and may not have been taught how to do this on their own (thus do not include situations here where a teen is receiving help in navigating the system from someone else—see "Assistance/support." This is also separate from "Physical location," "Transportation," and "Appointment availability" which focus on barriers to access).
22. PP Services	Services	Questions and concerns regarding which services are provided by Planned Parenthood. This does NOT include distinguishing which PP health centers offer which services (i.e. does their *particular* PP offer abortion—see "Physical location" instead). This could,

		however, include a general question regarding where to receive a health service.
23. Physical location	Access.HC	Includes concerns regarding the proximity of a health center (or other location for receiving health services, such as a pharmacy). Includes a concern that their closest PP health center does not offer their desired service or a request for a close health center. Also includes any discussion around public or private transportation as a barrier to receiving care.
24. Appointment scheduling	Appt	This includes expression of concern that there will be limited or no appointment availability. Additionally, could include concerns about missing school, work, or another activity, which may be a barrier to care.
25. Assistance/support +	Support+	Discussions regarding how a family member, partner, friend, etc. can assist as a *facilitator* in gaining healthcare access for the user. Also includes situations in which such a party has already expressed support or willingness to assist.
26. Assistance/support -	Support -	Concerns or questions related to a family member, partner, friend, health center staff member, etc. who has expressed a lack of support for a user's reproductive or sexual health decisions. This also includes a *perceived* lack of support, regardless of whether it has been explicitly stated to the user.
27. Intention to follow through to seek services	Follow.thru	Any statements by a user that they plan to seek the service/appointment discussed during the conversation.
MENSTRUATION		
28. Menstruation (unspecified)	Menstr	Includes questions and concerns regarding the basics of menstruation, i.e. how, why, and when it happens. Includes general questions about changes in menstruation (early, delayed, different color, lighter/heavier, etc.). Focuses on questions about menstruation that are unrelated to pregnancy and/or fertility. This does NOT include changes in menstruation due to hormonal birth control—see "EC side effects" or "Side effects of hormonal birth control."
29. Menstruation and pregnancy	Menstr.preg	This encompasses all concerns regarding changes in menstruation (early, delayed, different color, lighter/heavier, etc.) as a symptom of pregnancy. Also includes questions about whether a woman can get her period while pregnant. Could include concerns about "spotting" when, upon probing, "spotting" is actually a period.
30. Menstruation and fertility	Menstr.fert	Includes questions about whether one is able to get pregnant or not depending on if she has sex right before, during, or immediately after her period or if her period is naturally irregular.

PREGNANCY		
31. Symptoms of pregnancy	Preg.sym	Include discussions of both what are and what are not symptoms of pregnancy. This does not include changes in menstruation—see "Menstruation and pregnancy." Also includes general statements such as "I think I am pregnant" as well as questions such as "How do you know you are pregnant without taking a pregnancy test" or "before a missed period".
32. Fertility, infertility, and how pregnancy begins	Preg.how	Includes discussions of how pregnancy happens, i.e. process of ovulation, sperm meeting the egg, implantation, etc. This may be related to various types of risk, but should be coded separately. Also includes discussions about fertility for women who are trying to become pregnant *or* prevent pregnancy. Can also include reasons for infertility. Can also include explicit questions regarding whether she is at risk for becoming pregnant (in this case something in the "Risk" theme would likely also need to be coded).
33. Desire to be pregnant	Preg.desire	Includes any conversation in which a teen is actively seeking to become pregnant.
34. Prenatal Care	Preg.care	Includes any conversation in which a teen has questions or concerns regarding prenatal care. For more questions about parenting, teens who are receiving pregnancy options counseling and are unsure of whether they want to parent, but would like more information, should be included here (as well as coding "Pregnancy Options"). Parenting questions or discussions for teens who desire to be parents should rather be coded as "Desire to be pregnant"
35. Uncertainty/info seeking on pregnancy options	Preg.opt	Includes any conversation in which a user is pregnant (or believes she may be pregnant) and is unsure of what to do with the pregnancy and/or what her options are.
36. Risks during pregnancy	Preg.risk	Includes any conversation about risks to women who are *currently* pregnant. This includes activities that pregnant women should or should not do, what they should or should not eat, etc.
37. Pregnancy loss	Preg.loss	Any concerns related to a possible or actual pregnancy loss (unrelated to intended abortion).
PREGNANCY TESTING		
38. Pregnancy testing	PT	Includes ALL concerns regarding pregnancy testing. This includes, but is not limited to: reading results of a home test, conflicting test results, accuracy of results, difference in types of test, and testing window period.
EMERGENCY CONTRACEPTION		
39. How and when to take	EC.how	Includes any explanation of how and when to use emergency contraception or concerns

emergency contraception (EC)		regarding proper or misuse of EC. This could include whether the unprotected sex was in the last five days, whether sex was protected or not, etc.
40. Effectiveness of EC	EC.eff	Includes conversations about the failure rate and how effective EC is in comparison to other types of non-emergency birth control. Could include discussions about whether different types of EC have different levels of effectiveness. Also includes questions regarding how EC works. Do not include questions regarding effectiveness in the case of improper use (see "How to take EC").
41. Side effects of EC	EC.SE	Includes all conversation regarding potential long and short term side effects of EC—what they are, their likelihood, etc. Could involve distinguishing between long and short term side effects, or what the differences/similarities are between different EC brands. Also includes questions and concerns regarding whether EC could affect an already existing pregnancy and other concerns related to safety. This may also include effects on menstruation.
ABORTION		
42. Abortion (unspecified)	AB	Includes any conversations about abortion in which neither the pill nor the in-clinic procedure is specified.
43. Abortion Pill	ABP	Includes conversations about what the experience of taking the abortion pill is like. May describe the visit, procedure, whether there is pain, short term side effects, etc. Also includes questions regarding safety and effectiveness.
44. In-clinic abortion	ABIC	Includes conversations about what the experience of having an in-clinic abortion is like. May describe the visit, procedure, whether there is pain, short term side effects, etc. Also includes questions regarding safety and effectiveness.
BIRTH CONTROL		
45. Hormonal birth control	HBC	Includes all conversations regarding hormonal birth control, including how to take it, effectiveness, return of fertility after stopping, safety, and side effects. Also includes statements about *not* taking hormonal birth control.
46. Condoms	Condoms	Includes all conversations regarding male and/or female condoms, including how to use them and effectiveness.
47. Other Contraception	BC. Other	Includes all conversations regarding contraceptive methods that are not hormonal or condoms, such as: non-hormonal IUD (Paragard), spermicide, diaphragm, and the calendar method.
INFECTIONS		

48. Symptoms of infections	STI.sym	Includes discussions of both what are and what are not symptoms of STIs. This includes discussions in which a user presents a set of symptoms and it leads to a discussion of whether they are signs of STIs. Other vaginal infections (i.e. bacterial vaginosis, yeast infections) are included here as well and could include conversations about distinguishing between STIs and other vaginal infections. Also includes general statements such as "I think I have an infection" or "How do you know if you have an STI?" and also general information about infections. Include urinary tract complaints here.
49. Infection transmission	STI.trans	Includes any questions or concerns about how infections are transmitted. Includes conversations regarding ways of preventing transmission (i.e. using condoms), and understanding her STI/HIV status as compared to her partner's. Also includes questions regarding vaccines for different infections.
50. STI testing	STI.test	Includes all questions about STI testing, such as conversations regarding accuracy of STI tests, how the tests work, what can be tested for with which type of test, and how she can receive her result. This could also include whether there is a test available to test for a particular STI of concern. Also includes conversations about the window period, or the appropriate and most accurate time to take a particular STI test. Would not include other factors in deciding whether to take a STI test—these would likely fall under "Symptoms of infections" or "Risk" categories.
51. Treatment of STIs	STI.tx	Includes conversations distinguishing which STIs can be treated, how treating or not treating an STI affects long term side effects or cause complications, and what types of treatment are available.
RISK AND BEHAVIOR		
52. Risk from oral sex	Risk.oral	Includes any concern from the user about oral sex
53. Risk from hand/genital contact	Risk.hand	Includes any concern from the user about hand/genital contact
54. Risk from sexual contact through clothing	Risk.clothing	Includes any concern from the user about sexual contact through clothing.
55. Risk from withdrawal	Risk.withdrawal	Includes any concern from the user about withdrawal. Withdrawal implies there was no ejaculation during intercourse. If there was ejaculation during intercourse or if the user does not specify whether there was ejaculation, see "Risk from unprotected sex."
56. Risk from unprotected sex	Risk.unpro	Includes any concern from the user about unprotected sex (i.e. sex that did not utilize a birth control method or in which a birth control method failed, not including emergency

		contraception). Unprotected sex implies that there was ejaculation during intercourse. If there was no ejaculation during intercourse, see "Risk from withdrawal."
57. Risk from protected sex	Risk.pro	Includes conversations in which a user expresses a *concern* about risk related to protected sex (i.e. sex that utilized at least one birth control method that did not fail, not including emergency contraception). These concerns would include whether she is still at risk for pregnancy and/or infection.
ANATOMY		
58. Female anatomy	(female symbol)	Includes any questions regarding female anatomy specifically, such as the vagina, discharge, breasts, ovulation/implantation when *unrelated to other topics* including pregnancy, menstruation, STIs, infections, birth control side effects, and fertility.
59. Male anatomy	(male symbol)	Includes any questions regarding male anatomy specifically, such as the penis, circumcision, ejaculation, and pre-ejaculation. Separate from other questions regarding male partners, male condoms, etc.
60. Anatomy (other)	Anatomy	Includes any questions about the body or health *unrelated to sexual and reproductive health*. Examples could include stomach or back pain, when unrelated to a reproductive health concern or questions regarding seeking care for these issues.

TRANSCRIPT: 1AC

info: Welcome to Planned Parenthood. A representative will be with you [09:08:56] shortly. You are number 1 in line. Your wait time will be about 7 minute(s) and 0 seconds. Thanks for your patience.

[09:09:05] **info:** You are now chatting with 'Lucy'

[09:09:14] **Lucy:** Welcome to our live chat service.

[09:09:21] **Lucy:** Good morning, how may I assist you today?

[09:09:48] **1AC:** I have some questions and this is the only resource that I have

[09:10:41] **Lucy:** I'd be happy to assist you as best as possible.

[09:10:45] **Lucy:** You are not alone and we are here to help.

1AC: I am 17 weeks pregnant and I have been trying to get an abortion [09:11:45] since I was six weeks

[09:12:09] **1AC:** But I have no type of coverage to pay for the costs

Lucy: That sounds like a really tough situation. May I ask have you [09:12:47] confirmed your pregnancy with an ultrasound or pregnancy test?

[09:13:22] **1AC:** Yes, A pregnacy test

Lucy: Thank you very much. Do you also remember the first day of your [09:14:37] last period?

[09:14:56] **1AC:** Yes October 19th

Lucy: Thank you. Your nearest Planned Parenthood that can provide
[09:15:16] abortion services up to 24 weeks can be reached at: 26 Bleecker Street New York, NY 10012 p: 212.965.7000

Lucy: Have you already tried contacting them for any potential financial
[09:15:27] assistance?

[09:16:35] **1AC:** No I havent

[09:16:50] **1AC:** I looked at there services online

[09:17:28] **1AC:** I didnt see anything about getting help financially

Lucy: May I ask, do you have any form of health insurance? Some
[09:19:04] insurances can cover some or all of the cost.

[09:19:18] **1AC:** No I DONT

Lucy: If you are uninsured, you may be eligible to receive financial assistance for your procedure. You can confidentially find out if you qualify
[09:19:48] by calling our staff at 212.965.7000. If you are eligible for financial assistance, you may be asked to bring documentation with you to the health center.

Lucy: I highly recommend that you call the center to be screened for
[09:20:15] financial assistance. You still have time and there is help available.

[09:22:04] **1AC:** Ok I will thank yo

[09:22:12] **1AC:** you*****

Lucy: You are absolutely welcome. Do you have any questions about
[09:23:09] what to expect during an abortion service?

1AC: No not really, But if I am elegible when would I be able to begin the
[09:24:23] procedure

Lucy: Our staff understands the importance of timeliness with regards to
[09:25:26] abortion procedures so you would likely be able to have an appointment within 1-2 weeks. Sometimes there may be availabilities sooner.

[09:29:10] **Lucy:** The hours for our Margaret Sanger Center can be viewed here.

Lucy: They are open from Monday - Saturday. They are also open from
[09:29:30] 8AM to 6:30PM today.

[09:40:10] **Lucy:** Since this chat has been inactive for a while I will end it shortly.

[09:40:27] **1AC:** Ok thank you so much Lucy

1AC: Because of you I will be able to get my procedure done with in the
[09:41:05] next two weeks

Lucy: You are absolutely welcome. Do you mean that you were able to
[09:41:23] obtain an appointment?

[09:41:29] **1AC:** You just made my life so less complicated

Lucy: I'm glad if we could be of help. Please don't hesitate to contact us [09:42:10] again in the future through this chat service or at your nearest Planned Parenthood.

[09:42:30] **1AC:** Ok thank you

Appendix 4: UCT Ethics Approval

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences
Human Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
e-mail: shuretta.thomas@uct.ac.za

23 October 2012

HREC REF: 547/2012

Ms K Daskilewicz
c/o Ms E Stern
Public Health & Family Medicine

Dear Ms Daskilewicz

PROJECT TITLE: EXPLORATION OF THE SEXUAL AND REPRODUCTIVE HEALTH CONCERNS OF FEMALE ADOLESCENTS UTILIZING A TWO-WAY MOBILE AND INTERNET TECHNOLOGY ACROSS THREE RACIAL/ETHNIC GROUPS IN THE U.S.

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year till the 30th October 2013

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/research/humanethics/forms)

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

s.thomas

Appendix 5: NYU Ethics Approval

NEW YORK UNIVERSITY
A private university in the public service

University Committee on Activities Involving Human Subjects
665 Broadway, Suite 804
New York, NY 10012
Telephone: 212-998-4808
Fax: 212-995-4304
Internet: www.nyu.edu/ucaihs

MEMORANDUM

TO: Vincent Guilamo-Ramos

FROM: Alison Dewhurst
Human Research Compliance Director

REVIEW DATE: 08/10/2012

RE: IRB# 12- 9109 : Planned Parenthood Chat Text Project

The referenced protocol was administratively reviewed for exempt clearance. The review has determined that although the work may meet the criteria for research as defined by 45 CFR part 46.102(d), it does not involve obtaining private information about living individuals (45 CFR part 46(f)). Thus, **it is not considered research with human subjects and** further review is not needed.

The Office of Human Research Protection Decision Chart 1 summarizes the basis on which this determination is based. The chart is available on the OHRP web site at: http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html#c1

Although this **specific** study as described does not require review, please continue to submit queries for all research activities that involve humans or data from humans to the UCAIHS for a determination of whether review is required.

If you have any questions, please contact the UCAIHS at 212-998- 4808 or at ask.humansubjects@nyu.edu.

We wish you success with your research.

Appendix 6: Journal of Adolescent Health Submission Instructions

Guide for Authors

Editor
Charles E. Irwin, Jr., M.D., Editor-in-Chief
Tor D. Berg, Managing Editor

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http://ees.elsevier.com/jah/

Editorial Policies

General Information
The Journal of Adolescent Health publishes Original Articles, Adolescent Health Briefs, Review Articles, Clinical Observations, and Letters to the Editor.

Duplicate/Prior/Overlapping Publication or Submission
Manuscripts are submitted for review with the understanding that they are being submitted only to the Journal of Adolescent Health. The Journal will not consider for review any manuscript that has been published elsewhere, that is currently under consideration by another publication, or that is in press. Poster and platform presentations and abstracts are not considered duplicate publications, but should be noted in the manuscript's cover letter and Acknowledgements section of the manuscript.

If the submitted manuscript contains data that have been previously published, is in press, or is currently under review by another publication in any format, the authors are required to submit a reprint of the published article or a copy of the other manuscript to the Editor-

in-Chief with a clarification of the overlap and a justification for consideration of the current submitted manuscript.

The Editors encourage authors to report fully the complete findings of their studies. The editors recognize that large and longitudinal datasets often result in multiple publications both on different topics and on the same topics across the span of development. Therefore, it is the authors' strict responsibility both to notify the editors of the existence of multiple manuscripts arising from the same study and to cross-reference all those that are relevant.

Manuscripts accepted for peer review may be submitted to the iThenticate plagiarism checker. iThenticate compares a given manuscript to a broad range of published and in-press materials, returning a similarity report, which the editors will then examine for potential instances of plagiarism and self-plagiarism.

Failure to disclose multiple or duplicate manuscripts may result in censure by the relevant journals and written notification of the appropriate officials at the authors' academic institutions.

Authorship Criteria
As a condition of authorship, all listed authors must have seen the final draft of the manuscript, approve of its submission to the Journal of Adolescent Health, and be willing to take responsibility for it in its the entirety.

The Journal limits manuscripts to 6 named authors. If you would like to request permission to submit an article with more than 6 authors, please send a detailed description of each author's contribution to tor.berg@ucsf.edu. Under no circumstances will the Journal consider manuscripts listing more than 10 named authors.

For manuscript's accepted for peer review, a signed Statement of Authorship will be requested from each named author. The Journal's Statement can be downloaded in PDF format here. We prefer an electronic copy of the statement: please electronically sign the PDF using Acrobat or print the PDF, sign it by hand, and scan it. We can also receive statements by fax at (415) 476-6106, though it may delay processing of your manuscript.

If there are concerns about how all persons listed as authors meet the criteria for authorship according to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication available at www.icmje.org, we will request further information from the corresponding author and, if necessary, request written documentation of each person's work on the report.

The names, along with any conflicts of interest, funding sources, and industry-relation, of persons who have contributed substantially to a study but who do not fulfill the criteria for authorship are to be listed in the Acknowledgments section. This section should include individuals who provided any writing, editorial, statistical assistance, etc.

Ethical Approval of Studies, Informed Consent, and Identifying Details
Studies of human subjects must document that approval was received from the appropriate institutional review board. When reporting experiments utilizing human subjects, it must be stated in writing, in the Methods section, that the Institution's Committee on Human Subjects or its equivalent has approved the protocol. The protocol for obtaining informed consent should be briefly stated in the manuscript. The Editor-in-Chief may require additional information to clarify the safeguards about the procedures used to obtain informed consent. Within the United States, the authors should verify compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPPA) prior to submission. When reporting experiments on animal subjects, it must be stated that the institution's animal care and use committee has approved the protocol.

Authors must immediately disclose to the Journal of Adolescent Health in writing the existence of any investigation or claim related to the manuscript with respect to the use of human or animal subjects that may be initiated by an institutional, regulatory, or official body at any time, including investigations or claims arising subsequent to manuscript submission, approval or publication.

Clinical Trials Registration
In order to foster a comprehensive, publicly available database of clinical trials, journals Increasingly are requiring the registration of clinical trials. At this time, registration is not required for submission or publication in the Journal of Adolescent Health. However, the Editors strongly recommend registration of clinical trials in an appropriate registry. Please provide the site of registration and the registration number on the title page.

One such registry is ClincalTrials.gov, a service of the U.S. National Institutes of Health, at http://www.clinicaltrials.gov/. A number of other registries are available.

Conflict of Interest/Disclosure Policy
According to the World Association of Medical Editors (WAME):

"...a conflict of interest (competing interest) is some fact known to a participant in the publication process that if revealed later, would make a reasonable reader feel misled or deceived (or an author, reviewer, or editor feel defensive). Conflicts of interest may influence the judgment of authors, reviewers, and editors; these conflicts often are not immediately apparent to others. They may be personal, commercial, political, academic, or financial. Financial interests may include employment, research funding (received or pending), stock or share ownership, patents, payment for lectures or travel, consultancies, nonfinancial support, or any fiduciary interest in the company. The perception of a conflict of interest is nearly as important as an actual conflict, since both erode trust."

Authors are required to disclose on the title page of the initial manuscript any potential, perceived, or real conflict of interest. Authors must describe the role of the study sponsor(s), if any, in 1) study design; 2) the collection, analysis, and interpretation of data; 3) the writing of the report; and 4) the decision to submit the manuscript for publication. Authors should include statements even when the sponsor had no

involvement in the above matters. Authors should also state who wrote the first draft of the manuscript and whether an honorarium, grant, or other form of payment was given to anyone to produce the manuscript. If the manuscript is accepted for publication, the disclosure statements may be published.

Fast-Tracking for Critical Issues in Adolescent Health and Medicine : The Journal of Adolescent Health has developed a fast-tracking system in order to facilitate and encourage the submission of high quality manuscripts with documented findings that may change the content of clinical practice or assist with the national and/or international dialogue about critical issues affecting adolescents and young adults. Manuscripts accepted for a fast-track review will be forwarded to two reviewers from our Editorial Board, who are given two weeks to conduct an expedited review. The Journal will notify authors of the outcome of the review within three weeks of submission. If the review is favorable, fast-track authors will be asked to complete any necessary revisions within two weeks.

Upon acceptance, fast-track manuscripts are prioritized for publication, and should appear in print within two months.

Fast tracking is a rare event intended for high-priority findings and should not be viewed simply as a mechanism for an expedited review. The article should be prepared in the same manner as an Original Article.

The Editorial Process

Acceptance for Review
Manuscripts submitted to the Journal of Adolescent Health are reviewed internally for interest and relevance. Approximately half of all submitted manuscripts are returned to the authors without full peer review. That decision is made quickly, within two weeks of submission

Peer review and Decision
Manuscripts accepted for peer review are sent to three external reviewers. Reviewers are anonymous; authors' names are revealed. The Journal's goal is to complete peer review and reach a decision within seven weeks of submission.

Manuscripts will either be declined based on reviewer comments or referred back to the authors for revision. This is an invitation to present the best possible paper for further review; it is not an acceptance.

Authors are asked to complete revisions within 30 days. If the authors do not respond within 30 days, the editors may decline to consider the revision. The editors reciprocate by providing a final decision quickly upon receipt of the revision.

Acceptance for Publication
All manuscripts accepted for publication will require a written assignment of the

copyright from the author(s) to the Society for Adolescent Health and Medicine. Elsevier Inc. will maintain all records of the copyright for the Society for Adolescent Health and Medicine. No part of the published material may be reproduced elsewhere without written permission from the publisher.

Authors will receive typeset galley proofs via e-mail from the Journal's issue manager at Elsevier. Proofs should arrive approximately four to six weeks following acceptance.

The article will be published in the print edition of the Journal approximately five to seven months after acceptance.

Articles Online First
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Aalsma MA, Tong Y, Wiehe SE, et al. The Impact of Delinquency on Young Adult Sexual Risk Behaviors and Sexually Transmitted Infections. J Adolesc Health 2010;46:17-24. DOI:10.1016/j.jadohealth.2009.05.018.

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Books and Monographs

1. Personal Author(s):
Romer D, ed. Reducing Adolescent Risk: Toward an Integrated Approach. Thousand Oaks, California, Sage Publications, 2003.

2. Editor(s) Compiler(s), Chairman as Author(s):
Rosen DS, Rich M, eds. The Adolescent Male. Adolescent Medicine: State of the Art Reviews. Vol 14. Philadelphia, Hanley & Belfus, 2003:3.

3. Chapter in a Book:
Marcell AV, Irwin CE Jr. Adolescent Substance Use and Abuse. In: Finberg L, Kleinman RE, eds. Saunders Manual of Pediatric Practice, 2nd edition. Philadelphia: WB Saunders, 2002:127-139.

4. Agency Publication:
America's Children: Key National Indicators of Well-Being 2009. Washington, DC: Federal Interagency Forum on Child and Family Statistics, 2009.

Web site

World Health Organization. Good information practice essential criteria for vaccine safety web sites. Available at: http://www.who.int/vaccine_safety/good_vs_sites/en. Accessed January 13, 2010.

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