REDUCING DEVELOPMENTAL AND CULTURAL BARRIERS TO REPRODUCTIVE HEALTH SERVICES FOR DIVERSE YOUTH POPULATIONS

FINAL ANALYSES OF CONCEPT MAPPING DATA*

Barbara W. Sugland, M.P.H., Sc.D.
Kathleen J. Wilder, M.H.S.
Anita Chandra, B.A.

Child Trends
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INTRODUCTION

Most youth successfully make the transition to adulthood. Many, however, experience problems that threaten their current and future health status. Much of the threat to adolescent health is due to "social morbidities" such as substance abuse, unintended pregnancy, sexually transmitted infections, and HIV. Youth of color are disproportionately affected by these social conditions, underscoring the importance of reproductive health interventions specifically targeted toward diverse youth. Despite the need for such programs, reproductive health services specifically designed to serve such youth are few in number. First, most reproductive health services tend not to target youth, thereby forcing young people to seek services in health care settings geared towards adults. Second, most mainstream provider agencies are generally ill prepared to handle youth clients, and even less well equipped to provide culturally appropriate services for diverse youth clientele.

Child Trends, through support from the Charles Stewart Mott Foundation conducted a study that addressed the need for reproductive health services appropriately designed for diverse adolescent populations. The study targeted a number of gaps within existing research on adolescent reproductive health service delivery. Specifically, the study 1) documented youth perceptions regarding barriers to reproductive health services; 2) assessed the ability of nine reproductive health service agencies to serve adolescent and diverse teen clients, and; 3) developed guidelines and suggestions for implementing developmentally and culturally competent reproductive health services.

The project employed two data collection strategies -- *Concept mapping* and *site monitoring*. The first phase of the project involved using concept mapping to gather and organize teens' perspectives on barriers to reproductive health services. Specifically, 24 concept mapping groups were conducted among a sample of European-American, African-

and Hispanic-American youth between 13 and 18 years of age. Groups were conducted separately by race/ethnicity, gender and income. European- and African-American youth groups were conducted in Baltimore, MD; Hispanic-American youth groups were conducted in Houston, TX.

The second phase of the project included site visits to provider agencies to assess how providers handle youth clients and the level of developmental and cultural competency among a select number of reproductive health agencies in the Baltimore and Houston metropolitan areas. The first two phases of the project were used to guide the development of a set of recommendations for implementing developmentally and culturally competent reproductive health services.

This paper describes activities conducted as part of the first phase of the project and includes findings from data gathered from concept mapping groups with adolescents.

Overview of Concept Mapping

Concept mapping is a technique used to elicit information about how a group (in this instance youth) conceptualize or think about a particular topic, such as the reproductive health care delivery system. In part, implementing the Concept Mapping process is similar to conducting focus groups in that a "planned discussion" is used to obtain the group's perceptions on a defined topic of interest in a permissive, non-threatening environment. Concept mapping groups, like focus groups, are also led by a moderator and require a small group of participants.

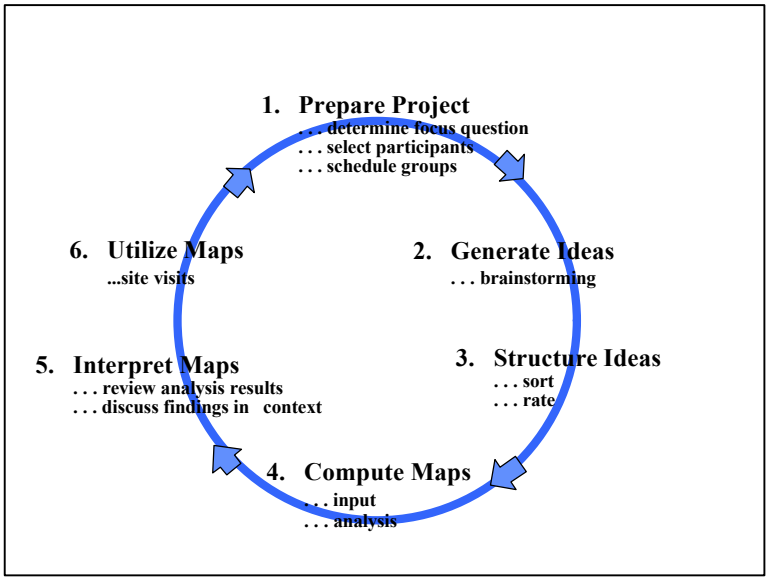
However, concept mapping is distinct from focus groups in that it combines qualitative and quantitative techniques for exploring a group's perspective on a topic.[1] In particular, one specific focus question is presented to the group and the group is asked to respond to the focus question through a type of "brainstorming" process. For example, the group may be presented the following question with respect to the topic of reproductive

[1] Trochim, W. K. (1989). An Introduction to Concept Mapping For Planning and Evaluation. *Evaluation and Program Planning* 12, 1-16.

health services: "What barriers or problems make it hard for youth to obtain contraceptive methods?" Next, the group is asked to generate ideas/responses to the focus question through brainstorming, where participants put forth as many different possible responses to the question that can be identified.

After brainstorming, participants are asked to organize the full set of ideas into smaller sets or concepts and to rate the relative importance of each idea to the topic. The individual data are then entered into a specially designed computer software package, the ™Concept System, which is used to assess and present the conceptual representation of the group's ideas. This structured conceptualization is in the form of a concept map or a pictorial representation of the group's opinions. The map displays each construct or issue the group has identified, and shows how these ideas are related to each other, and which ideas are deemed more relevant, important, or appropriate to the group. The concept mapping process consists of six steps (shown in Figure 1), with steps 1 through 5 carried out in each concept mapping group by a facilitator and co-facilitator. For this project, 24 concept mapping groups were conducted, with approximately 5 to 8 participants in each group. Each group lasted between 1 1/2 and 2 hours.

Figure 1: Steps in the Concept Mapping Process



The six steps in the concept mapping process generally include:

1. Preparing for the project, including creation of the focus question/issue, selection of group participants, and scheduling groups;
2. Generation of Ideas in response to the focus question -- "Brainstorming"
3. Structure/Rate Statements by group participants
4. Generating Maps - "Representation of Statements"
5. Interpretation of Maps
6. Utilization of Maps

In the following pages, we briefly highlight each step, discuss how it was conducted in the context of this project, and present the major findings from the concept mapping groups.

Methods

Step 1 - Preparation & Development of the Focus Question

Preparation for concept mapping included identification and selection of group participants, as well as the development of a focus question to guide the group process. The focus question listed below was developed for the purposes of this project:

> *"List all the things that teens or adults could do to make contraceptive services more accessible to teens and better meet the needs of teens. Include anything you think would influence someone's chances of knowing about services, ways to use the services, and ways to return for services on a regular basis. Include anything you know about or have heard about, whether or not you think it would be useful."*

With respect to recruitment of teen participants, Child Trends contracted with Motivational Educational Entertainment (MEE) Productions, Philadelphia, PA to recruit youth participants. Teens were recruited through community-based agencies in the Baltimore and Houston metropolitan areas. The large majority of the teens were recruited through teachers and youth organizations, such as churches, the Urban League, and other local organizations.

As part of the preparation for conducting the concept mapping groups, a Youth Advisory Board was convened. Youth advisors were selected from a pool of peer counselors

and teen leaders in the Washington, DC area. The Board was organized to: 1) provide input into the concept mapping and site monitoring process; 2) to provide a small number of youth who could assist the CT team with conducting site visits; 3) to review findings from concept mapping and site monitoring, and; 4) to offer input into the development of service delivery guidelines.

Youth Advisors were also used to generate the list of statements (e.g., brainstorming process) in response to the focus question regarding access to reproductive health services for teens. The rationale for using youth advisors to generate the statement list is described below.

Step 2 - Generation of Statements/Brainstorming

Typically *brainstorming*, the second step in the concept mapping process, takes place within each individual concept mapping group. Each group then either sorts/structures and rates their own unique list, or a comprehensive list is developed based on the items put forth across all groups, after which individuals are asked to sort/rate the comprehensive list. This list can be sorted/rated individually on-line (if a central computer system is available, such as a Local or Wide Area Network), or individuals can be brought back together as a group, presented the comprehensive list and asked to conduct individual sorts/ratings, followed by a group discussion.

For this project, however, several logistical issues precluded the team from conducting the brainstorming task in each group to form either a comprehensive list or to create separate individual lists. First, the purpose of the project was to determine how youth broadly conceptualized the issue of access to reproductive health services and to examine subgroup difference in that conceptualization. Thus, it was critical for youth participants to structure and rate the same list of statements generated in response to the focus question. Otherwise, subgroup comparisons would be inappropriate as each group's concept maps would be based on a slightly different statement list.

Second, as youth were located in different parts of the country, not centrally located (e.g., all from one school), and did not have access to a central online system, youth discussion groups would have to be convened at least twice. The first group meeting would be to

brainstorm and generate a statement list, from which a composite list from all groups would be developed. The second group meeting would be to organize and rate the statements on the composite list. Cost and inconvenience to participants to attend two group discussions was deemed prohibitive given the scope and purpose of this project. As a compromise, Youth Advisors were asked to complete the brainstorming task for this project. Specifically, youth advisors provided a list of items they believed would help make reproductive health services more accessible to teens. Items from that group discussion were augmented with issues identified from the literature review to determine whether and how youth perceived such issues as barriers to care. The final list was refined to minimize duplication of concepts and to ensure that the group could conduct the sorting and rating task with said number of items during the time allotted (1 1/2 hours). The final list of statements is shown in Table 1.

Thirty-eight unique statements were generated from the brainstorming process with Youth Advisors. Statements covered a broad range of issues and did not solely focus on adolescents, or on reproductive health care agencies. For instance, youth commented on the need for educating adolescents about sexual health, the importance of seeking care and improving teens' access to primary health care. Also on the list was the need to make reproductive health services more convenient for teens, including the creation of special teen clinics or special hours when only adolescents come for care. Statements also reflected the need to strengthen the capacity of staffs who work with adolescents by improving staffs understanding of factors that affect teen behavior, reducing staff bias with respect to adolescents who may be sexually active, or who may be of different racial/ethnic or social class backgrounds. Teens also commented on the need for media messages regarding responsible sexual behavior, and on involving music and film artists in delivering messages about contraceptive use and safe sex.

To further ensure that the standard list addressed issues/ideas that may be particularly relevant to specific teen subgroups, the standard list was "pre-tested" among the first set of concept mapping groups that were conducted. Discussions among teens in these first groups did not indicate missing items or issues. Thus, the original list of items remained unchanged for the remaining concept mapping groups.

The statement list was used in the concept mapping groups for steps 3-5 of the concept mapping process. Specifically, participants were asked to sort the statements into piles such that items in each group seemed similar, in some way, to one another.

Table 1: THINGS THAT WOULD MAKE REPRODUCTIVE HEALTH SERVICES MORE ACCESSIBLE TO TEENS			
1	More commercials, advertisements for contraception (on TV, before movies, on public transportation)	20	Have more corner clinics and "condom only" stores, where it's easy to get supplies
2	Have celebrities/musical artists endorse contraception and importance of using contraception (TV, before concerts)	21	Educate teens to assume their partner is NOT taking responsibility, and that they should be the one to use protection
3	Make media (sitcoms, talk shows) discuss/show "responsible" sex	22	Have youth or younger people work in clinics
4	Educate teens about parental consent issues (what they need/don't need parental consent for)	23	Have provider staff that are friendly and really care about teens, and won't make you feel bad about having sex
5	Make contraceptive services/supplies available in schools	24	Have provider staff reassure teens that their visit and discussions are confidential
6	Have health room or center in school where teens can get information, not just a school nurse	25	Make clinics more inviting (more colors, posters) and less isolating while you wait
7	Make sex education more comprehensive, broader health curriculum	26	More free clinics that are just for teens, or times for when just teens can come (afternoons, Saturdays)
8	Have discussion groups for teens about sexual health at school and places where teens go (neighborhood centers)	27	Locate services in places where teens feel less self-conscious about going to them
9	Have peer educators do presentations, plays & assemblies in schools on contraception and sexual health	28	Help teens think more about the risks of having sex, that they're not invincible
10	Make teens aware of free clinics/services and where they are located	29	Provider staff that are multiracial/multilingual (including sign language)
11	Make teens aware that services are not as hard to get as they think	30	Educate provider staff about cultural issues and how they influence teens' use of contraception and services
12	Have people teens feel they can talk to about reproductive health/contraception (teachers, parents, other adults, peers)	31	Educate teens about the importance of health in general, and be concerned about health even when young
13	Educate people teens feel close to (peers/teachers/parents, siblings) about contraception & how to talk with teens	32	Educate teens about "sexual health" (STDs, infertility, sterility)
14	Have "condom rallies" to distribute condoms (like "toys for guns" program)	33	Teach teens about the importance of getting care before you get sick or get a disease
15	Provide toll-free help/information lines about contraception and sexual health; make teens aware these lines are free	34	Give teens better access to regular health care (check ups, OB/GYN visits)
16	Give out pamphlets/brochures in schools & public places (mall)	35	Educate teens about truth (not stereotypes) regarding sex/contraceptives and use of services by people from different backgrounds
17	Make contraceptives available/easier/less embarrassing to get (public bathrooms, vans to distribute info & supplies)	36	Educate provider staff about issues/sexual issues that are specifically important to teens
18	Have teens who have been pregnant or had STD/HIV/AIDS, talk about importance of contraception	37	Inform teens about what happens when they go to a clinic, so they won't be worried or afraid to go
		38	Educate providers about teens' lack of trust in the health care system

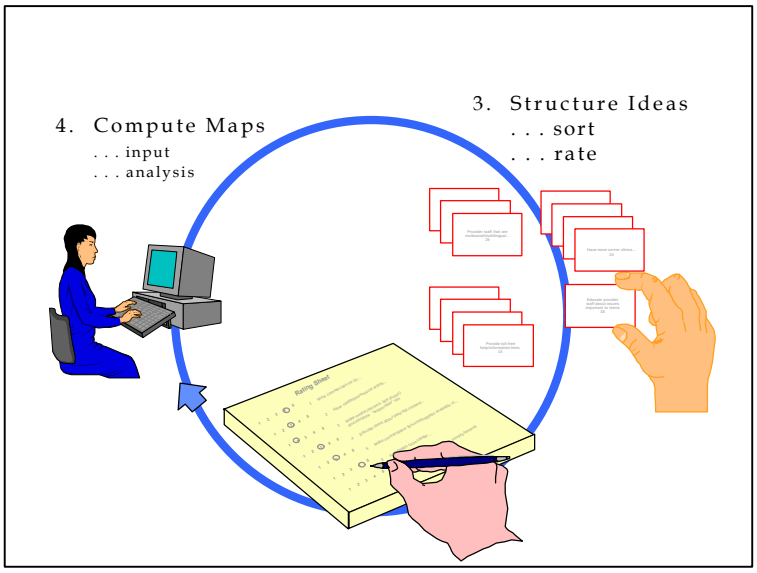
19	Provide more information on contraception other than condoms (the shot, dental dams, female condoms)	

The procedure for this part of process began with a brief overview of the statement list, where the moderator explained how the list was generated and quickly read through each item. Participants were given the opportunity to ask questions about specific items in order to clarify any items that were unclear. However, participants were instructed that no formal changes to the list could be made at that time. A more in-depth discussion of the list was conducted near the end of the group session to allow participants the opportunity to discuss any concerns or issues they had about the list.

Once the group was comfortable with the list and understood the items, they were led through the sorting and rating exercises illustrated in Figure 2. First participants received a stack of cards each of which had one of the statements on it. Participants were then instructed to: a) individually sort the cards into piles such that items that represented similar things were organized together, and; b) provide a word or phrase to describe the items in each pile. The only restrictions on the sorting task were that participants could not put all statements into one pile, or have individual piles for each statement (e.g., 38 piles).

Once the participants finished sorting the items, they were given a rating sheet with a 1 to 5 Likert rating scale next to each statement. Participants were asked to rate each statement according to how important it was, relative to other statements, for making reproductive health services more accessible to teens and to better meet the needs of teens (focus question). A "1" indicated the item was relatively unimportant/not at all important to the focus question, while a "5" indicated the item was essential for making services more accessible to teens.

Figure 2: Steps 3 & 4 in the Concept Mapping Process



After completing the sorts and ratings, participants were asked to complete a brief survey that included questions about the participant's family background, sexual, fertility and contraceptive history, health care utilization, plans for the future and attitudes about marriage and family life.

Once the participants finished their individual tasks, the moderator led a more in-depth discussion of the items on the list. Participants were asked if there were any items they wanted to add, items they wanted to remove, or items that they wanted to refine or modify in some way. Although the list was not formally modified, participants' feedback concerning the list was documented and incorporated into the discussion of concept mapping findings.

Step 4 - Generate Cluster Maps

As participants completed the rating and sorting task, the co-facilitator entered the sorts and ratings for each participant into the ™Concept Systems software via a laptop computer on site (See Figure 2). While participants were completing their surveys and discussing the list of statements, the co-facilitator computed and printed out a series of cluster maps, along with cluster lists indicating the range of statements from the list contained within each cluster. Cluster maps and cluster lists were used as the focal point

for the final group discussion.

The ™Concept System software uses multidimensional scaling and hierarchical cluster analysis to structure the participants sorts and ratings into a two-dimensional plot or concept map. First, non-metric multidimensional scaling (MDS) is used to create a point map. MDS is "a general term for a set of procedures that can be used to represent spatially the inter-relationship among a set of objects" (Fitzgerald and Hubert, 1987, pp.469).[2] The location of statements relative to one another as points is determined by the frequency with which statements were sorted together by youth participants. Thus, statements (points) grouped closer together were sorted together more frequently (e.g., viewed as similar in concept) by youth participants, while statements more distant from one another were less frequently sorted together or not sorted together at all.

Second, hierarchical cluster analysis is conducted to identify a set of distinct homogeneous groups or clusters.[3] The cluster analysis is used to delineate distinct conceptual domains within the various groupings of statements (points) determined by MDS. Also determined is the average rating of individual statements, and thus, the average rating of the clusters, which is based on the mean rating of statements within the cluster. A series of maps are drawn and presented to the group. Feedback from the group is used to validate the maps and to gather any final comments about the topic and the concept mapping process.

Several different types of maps can be generated by the software, including:

- Point maps -- which include the location of the statements only as a point
- Point rating maps -- which identify the location of the statements and their individual average rating shown as stacked points
- Cluster maps -- which show how the individual statements are clustered together;
- Cluster rating maps -- which show the clusters and their average group rating, shown as stacked clusters.

For this project, point rating and cluster rating maps were generated to illustrate

[2] Fitzgerald, L.F and Hubert, L.J. (1987). Multidimensional Scaling: Some Possibilities for Counseling in Psychology. *Journal of Counseling Psychology*. 34(4): 469-480.

[3] Aldenderfer, M.S. and Blashfield, R.K. (1984). Cluster Analysis. Sage Publication University Paper Series on Quantitative Applications in the Social Sciences, No. 07-044. Beverly Hills, CA. Sage Publications.

how youth organized the various statements into discrete conceptual domains, and the relative importance of statements and clusters.

Step 5 - Interpretation of Maps

For the purposes of the group discussion, the co-facilitator generated 8-, 7- and 6-cluster maps. Each type of map was presented to the group to obtain their feedback about the most appropriate map given the group's perception of the issue.

First the 8-cluster map for that group was presented to the group. Participants were asked to come up with a phrase or title to describe each of the clusters. They were also asked if there were any clusters they wanted to combine, because the items in each cluster seemed more similar than dissimilar.[4] Thus, the group's revised map could include fewer than 8 clusters. Participants were then shown the 6- and 7-cluster maps and asked to reach a consensus as to which map (the revised map 8-cluster map, vs. the 6 or 7 cluster map) best represented how the group perceived this topic. The moderator then explained briefly how the maps from other teen group discussions would be used to inform the development of programs for teens and the next steps to be conducted in the project.

Step 6 - Utilization of Concept Maps

The final step in the concept mapping process involved using the concept maps to direct the content and scope of site visits to reproductive health providers. Specifically, the team decided to focus on the conceptual domains identified by teens that were most relevant for service delivery. These aspects of service delivery and the extent to which provider agencies were addressing such issues were explored during site visits in the subsequent phase of the project.

Analysis of Concept Mapping Data

[4] Participants were allowed to comment on clusters they wanted to split apart. That is, clusters that had several items in them that appeared, to the group, they could be separated into smaller, and conceptually more similar piles. However, the group was not allowed to actually split the clusters, as the delineation of clusters was determined mathematically based on the frequency of sorting statements together. This concept was explained to and understood by

While each group offered its own interpretation of the concept map during the group discussion, the study team also reviewed concept maps across groups to determine common themes as well as subgroup differences.

The methodological approach for this data collection effort involved conducting 24 concept mapping groups among 15 and 16 year-old adolescents, with groups stratified by gender, race/ethnicity and neighborhood social class as shown in Figure 3.[5] Due to fiscal constraints, we were not able to stratify groups by age. However, it was important to recruit youth who were old enough to already have some experience with seeking reproductive health services, or who were old enough to be sexually active and potentially in need of services, if they had not already sought care. We acknowledge that understanding how younger teens perceive the reproductive health service delivery system is substantively interesting, particularly if one is to understand how to bring young people into the clinic setting early on, either before they become sexually active or as soon as they become sexually active. As a compromise, teens in middle adolescence were targeted for concept mapping groups.

Two groups were conducted for each race/social class/gender stratum to ensure that the findings from any subgroup were not a result of group dynamics. Each group consisted of roughly 5 to 8 youth, with 148 youth participating across all groups. Analyses presented here are for the total sample and main subgroup categories -- race/ethnicity, gender, and social class.

Figure 3. Stratification of Concept Mapping Groups

African-American				European-American				Hispanic-American			
15-16 Years				15-16 Years				15-16 Years			
Low-Income		Moderate-Income		Low-Income		Moderate-Income		Low-Income		Moderate-Income	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Grp 1 & 2	Grp 3 & 4	Grp 5 & 6	Grp 7 & 8	Grp 9 & 10	Grp 11 & 12	Grp 13 & 14	Grp 15 & 16	Grp 17 & 18	Grp 19 & 20	Grp 21 & 22	Grp 23 & 24

youth participants.

[5]Neighborhood social class was based on the level of household poverty in the census track in which the teen lived. Low SES was defined as neighborhoods with > 20% of households in poverty, while moderate SES was defined as neighborhoods with < 20% of households in poverty.

To determine the number of clusters for the "best fit" map, 6-, 7-, 8- and 9- cluster maps were examined for the total sample and by race, gender and income subgroups (low vs. moderate). Maps were reviewed manually to determine which maps appear to represent the data without excessively splitting or clumping clusters together. While this process involved some level of conjecture on the part of the study team, individual group maps were reviewed to ensure that the best fit map was not drastically different from the individual maps from which it was comprised. Cluster names for the final map were determined by comparing similar clusters across individual maps and using the cluster names provided by youth participants.

Key Findings

Study Sample Characteristics

As noted above, 148 youth participated in the 24 concept mapping groups conducted. Participants were recruited from the Baltimore and Houston metropolitan areas. While only teens 15 to 16 were targeted, the ages of teens who actually participated were younger and older than the target age group. Challenges with recruiting youth in this narrow age range required the team to soften the age restrictions for this phase of the project. However, as the tasks were conducted individually, and as this technique has been used with pre- and early adolescents[6], we are confident that a broader age range did not affect either the quality of information gathered or the capacity to interpret group findings. In particular, we found no statistically significant differences in the mean age of participants across subgroups.

Table 2 presents selected background and individual characteristics of youth participating in concept mapping groups.

[6]Peak, G. (1993). An exploration of African American adolescents' perceptions of the transition to adulthood. Unpublished doctoral dissertation, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, MD.

In particular, data show that the majority of youth participants are between 15 and 16 years of age (60%), although nearly one-third is between 17 and 18, and roughly 9% between 13 and 14 years of age. The sample is fairly well distributed across race/ethnicity (28% white, 33% black, 40% Hispanic), and evenly distributed across gender and neighborhood social class.

In addition, more than half of the sample reports living with both parents (either biological or step) and 30% are living with only one parent. A smaller proportion (15%) reports living in another type of family situation where neither a mother nor father is present. Roughly 40% have parents who attended college or went beyond college. More than three-fourths of adolescent participants have educational plans for either completing college or completing graduate school. Slightly more than 90% of participants are currently enrolled in school.

Table 2: Selected Background & Individual Characteristics of Youth Participants

Background/Individual Characteristics	**% Distribution**
Age at Interview	
13-14	8.8
15-16	59.9
17-18	31.3
Race/Ethnicity	
White, Non-Hispanic	27.3
Black, Non-Hispanic	32.9
Hispanic	39.9
Gender	
Male	50.7
Female	49.3
Neighborhood Social Class[a]	
Low SES	50.0
Moderate SES	50.0
Family Structure	
Two-Parents	54.8
Single Parent	30.1
Other (without mom or dad)	15.1
Mother's Education	
< HS	36.8
HS grad	24.0
Some College/Training	15.2
College Grad or more	24.0
Father's Education	
< HS	38.7

HS grad	20.7
Some College/Training	14.4
College Grad or more	26.1
% Enrolled in School	93.2
% Who Plan to Complete College or Go Beyond College	73.1

[a] Low neighborhood SES is defined as neighborhoods were more than 20% of households are in poverty; moderate SES is defined as neighborhoods were less than 20% of households are in poverty.

With respect to virginity and fertility status, we note that more than half of participants (58%) have already engaged in sex (Table 3). Those who have had sex initiated intercourse, on average, before age 14. Furthermore, nearly one-fifth of non-virgins in our sample has experienced a pregnancy or gotten someone pregnant, and nearly 10% have given birth or fathered a child. Both pregnancy and first birth occurred in this sample before respondents were, on average, 15 years of age. In addition, the majority of sexually experienced teens report having used contraception, but the average age at which contraception was first used (14.2 years) is slightly older than the average age at first sex, suggesting that many youth did not use a method of contraception at their first sexual encounter. This difference is statistically significant at a value of $p < 0.001$.

Table 3: Fertility-Related Behavior Among Youth Participants

Fertility-Related Behavior	**% Distribution (N) & Mean Age**
% Ever Had Sex	57.6 (83)
Avg. Age at First Sex (Among Non-Virgins)	13.8 years
% Ever Pregnant/Gotten Someone Pregnant (Among Non-Virgins)	19.5 (16)
Avg. Age at First Pregnancy (Among Non-Virgins ever pregnant/gotten someone pregnant)	14.6 years
% Ever had Birth/Fathered a Child (Among Non-Virgins)	8.7 (7)
Avg. Age at First Birth/Fatherhood (Among Non-Virgins who Have given birth)	14.75 years
% Ever Used Contraception (Among Non-Virgins)	81.9 (68)
Avg. Age First Used Contraception (Among Non-Virgins)	14.21 years
% of Virgins who have Ever Dated	31.1 (19)
% of Virgins who have had Steady Boyfriend/Girlfriend	36.1 (22)
% of Virgins who have shared Romantic Kiss with Boyfriend/Girlfriend	78.3 (47)

Even among participants who have not had sex, we find that close to one-third have started to date or have had a steady boyfriend/girlfriend. More than three-fourths have shared a romantic kiss with their boyfriend/girlfriend. While such behavior does not necessarily mean sexual intercourse is imminent, it does heighten the risk of sexual intercourse among the non-virgins in this sample.

Given the fertility-related characteristics and dating experiences of youth in our sample, we are interested in whether participants have ever sought reproductive health or contraceptive services, whether from a family planning agency or any other type of health care provider. In fact, we find that a relatively small proportion of participants have indeed sought reproductive health services (Table 4). In particular, just 25% of all respondents (sexually experienced and virgins) have ever visited a clinic, hospital or doctor's office in search of contraceptive information and/or services, and just 39% of sexually experienced teens have done so. The average age at first visit among sexually experienced participants was around 14 years. In fact, among sexually experienced teens who have ever received contraceptive services we find that the mean age of first sex (13.6) and mean of first visit (14.1) is significantly different ($p<0.001$

Table 4: Contraceptive Services Utilization among Youth Participants

Contraceptive Service Utilization	% Distribution & Mean Age
% Ever Received Contraceptive Services	
Among All Participants	25.0
Among Sexually Experienced	39.0
Among Virgins	6.6
Avg. Age at First Contraceptive Visit	
Among All Participants	14.2 years
Among Sexually Experienced	14.1 years
Among Virgins	14.3 years

In summary, data on participant characteristics indicate youth from diverse family backgrounds. Our sample is fairly well distributed across race/ethnicity, gender and social class. Although the goal was to recruit adolescents between 15 and 16 years of age, our sample includes some younger (13 to 14) and older adolescents (17 to 18). The majority of the sample, however, is between 15 and 16 years of age (mean age at interview is 15.8). The majority of participants are currently enrolled in school and report ambitions to

complete college or obtain more than a college degree.

In contrast, a substantial proportion reports being sexually experienced and initiated sex at a very early age (under 14). About one-fifth of sexually experienced teens have already experienced a pregnancy or gotten someone pregnant, and roughly 8% have become parents. The majority of participants who have had sex report having used contraception at some point during their sexual lives, but the average age at first contraceptive use (14.2 years) is significantly older than the average age at first sex (13.8 years) ($p<0.001$). This suggests that on average, sexually experienced youth in our sample did not use a method of birth control at their first sexual encounter. Furthermore, the majority of sexually experienced participants have never received contraceptive services, despite their early transition to first sex, experience with pregnancy and parenting. Among those who did receive care most made their first visit to a clinic on average between 5 and 6 months after initiating sex.

Furthermore, teens who have not had sex had started to date, have already had a steady boyfriend/girlfriend, and have engaged some level of physical intimacy, although the range of physically intimate behaviors (e.g., petting) is unknown. Even among this subgroup of participants we find that about 6% have visited some type of reproductive health provider for some type of contraceptive services.

While teens' perceptions about contraceptive services may not be based on personal experience with services, we believe their lack of service utilization in the context of their sexual behavior, should offer critical insights into factors that could improve access to reproductive health services for this population.

Concept Mapping Results

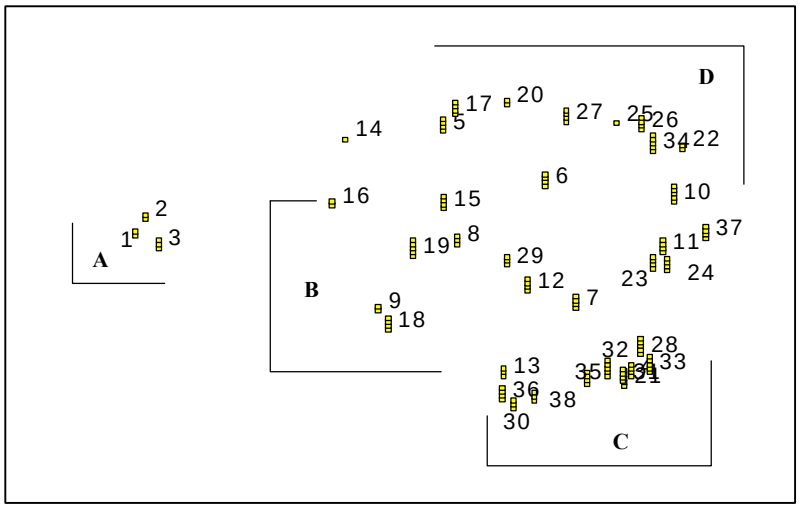
Total Sample - Point Rating Map

As previously mentioned, several different types of concept maps can be generated by the ™Concept System software. These maps include point and point rating maps, and

cluster and cluster rating maps. Results of concept mapping data presented in this paper will be based primarily on the cluster rating maps, which show the best fit clusters with their average ratings. However, for understanding overall patterns of conceptualization, it is worth briefly describing findings for the total sample from the point rating map and the cluster map, as the point map is helpful for visualizing broadly the general conceptual domains that youth identified and for interpreting the cluster rating map.[7]

Examination of the point map for the total sample shows possibly three to four distinct conceptual domains (Figure 4). One of the regions is made up of only three items (e.g., items #1 - #3), all of which have to do with the media and advertising contraception. This region, labeled "A" is very distinct from the other much larger regions and is located off on the left side of the map. The larger regions are located on the right side of the map and can be divided roughly into three sub-regions labeled "B, "C" and D". Items in region "B" reflect broader sexuality education and information about contraceptive methods and wider access to information. Region "C" reflects education about specific risk behaviors and educating adults who provide services to teens. Region "D" includes items that pertain to access to services, particular to primary care, reproductive health care and contraceptive methods. Because

Figure 4: Point Rating Map -- Total Sample (N=148)



[7] *Point- rating maps* illustrate the location of statements and their individual average rating. A *cluster rating map* shows the specific delineation of small groupings or clusters and their average group ratings. That is, the average rating of all of the statements included in that cluster. The numbers on these maps correspond to the item number on the statement list.

regions "B" and "C" reflect education broadly, albeit regarding different topic areas or populations, one could refer to these regions as one broad conceptual domain reflecting education/information. Thus, in general, the point rating map can be divided into three primary conceptual domains youth perceive as being important for enhancing teens' access to reproductive health services:

1) Media/Advertising/Social Promotion
2) Education/Information
3) Access to Services/Contraceptive Supplies

These three regions suggest that youth participants perceived three general ways in which access to reproductive health services could be improved. The first domain reflects that teens may be influenced negatively by the media where sexual relationships are not portrayed responsibly, as well as positively through the social promotion of responsible sexual behavior, advertising of contraceptive methods or promotion of contraceptive use by movie stars or musical artists. Thus, the value and importance youth place on responsible sexual behavior and contraceptive use is considered by youth in our study to influence teens' health seeking behavior and thus may deter them from seeking information, supplies or reproductive health care. We note that according to the point rating map (e.g., height of the stacked points), the role of this domain appears relatively less important than that of items located in other conceptual domains. However, youth view these items, nonetheless, as having a role to play in improving teens' access to services.

Education is the second conceptual domain through which teens perceive access to reproductive health services can be improved. Youth indicate that education may be specifically about types of birth control and how they work to prevent pregnancy or such information may reflect sexuality more broadly. In addition, education/information should be made available not only to adolescents, but to the adults that provide services to adolescents or to whom youth may seek support/guidance and/or information about sexual and contraceptive issues.

The third domain specifically addresses ways to improve accessibility and availability of primary health care, reproductive health services and contraceptive supplies, such as offering services at more convenient times, improving the clinic environment and improving

staff skills/capacity.

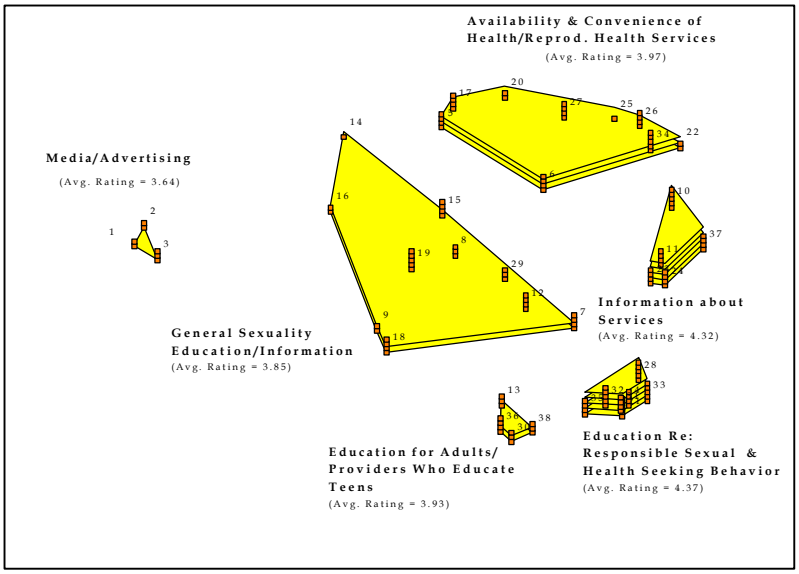
Total Sample - Cluster Rating Map

Cluster rating maps for the total sample show further sub-domains across the three broad areas illustrated by the point rating map (Figure 5). Specifically, the primary conceptual areas in the final 6-cluster map include:

1) Media/Advertising/Social Promotion;
2) General Health/Sexuality Education;
3) Accessibility/Availability of Clinics/Services;
4) Information/Education about Services;
5) Education/Information about Responsible Sexual Behavior, and;
6) Education for Adults and Providers Who Educate Teens

The clusters with the highest importance rating is the cluster labeled as Education regarding Responsible Sexual & Health Seeking Behavior (average rating=4.37), and cluster reflecting Information/Education about Services (average rating=4.32). The first cluster includes items that reflect the need for personal responsibility for accessing reproductive health services and for practicing safe sex. The second cluster addresses the need for information about where services are located and how to access them, information about what to expect during a clinic visit, and clinic staff who are comfortable with teens and can assure confidentiality of care.

Figure 5: Cluster Rating Map -- Total Sample (N=148)



Clusters with the next highest importance rating include, Availability/Convenience of Services (Avg. Rating = 3.97), Education for Adults/Providers who Educate Teens (Avg. Rating = 3.93), and General Sexuality Education/information (Avg. Rating = 3.85). The availability/convenience cluster includes items that suggest ways to broaden the availability and convenience of services, such as placing services in discrete locations, having younger adult staff work in clinics, making clinics more physically inviting, and having teen only clinics or clinic hours.

Items that offer suggestions for improving education and skills of those who work with youth reflect the need for broadening staffs understanding of developmental and cultural issues, and increasing staffs knowledge about the topics that are particularly salient to young clients. The General Sexuality Education cluster reflects the need for broader sexuality education, including access to information outside of the school setting, and having a broad range of adults to with whom youth can discuss issues of sexuality and contraceptive health.

The cluster with the lowest importance rating is the Media/Advertising cluster (average rating = 3.64). As previously described, this cluster consists of three items that reflect the need for advertisements/commercials about contraception, having celebrities endorse

contraception and safe sex, and making the media portray responsible sexual behavior.

It is important to note that the average importance ratings for items and clusters tend to be skewed toward the middle to higher end of the 5-point scale. This reflects the fact that participants did not make full use of the 1 to 5-point scale as instructed. Therefore, some items had relatively higher or lower ratings, which may have unduly affected the average ratings for some clusters. In most instances, however, a particular item may have influenced the average rating of a cluster, but it did not alter the overall importance of the cluster relative to other clusters.

It is also worth mentioning the items that received the highest and lowest importance ratings, as these items offer insights as to specific strategies for transmitting information or improving access to care. For example, of the five most important statements in the total sample, two focussed on improving information and teens' predisposition to accessing services. These include: "teaching teens the importance of getting care before they get sick or get a disease" and "giving teens better access to regular health care". Another two addressed the need for improving information about sexual health such as "educating teens about sexual health including diseases", and "educating teens to assume their partner is not taking responsibility and they should be the one to use protection". The last of the top five most important statement addressed the need for making teens aware of free clinics and services and where they are located.

With respect to the least important statements, we find teens are not equally supportive of particular ways of disseminating information. For example, using condom rallies, or peer educators to presentations, or using celebrities to endorse contraception received the lowest importance ratings among all of the 38 statements on the list. This suggests that youth view these items as least salient for reaching adolescents with information about services or for increasing motivation to use services. Two other statements among those with the lowest ratings reflect availability and convenience of services. Specifically, "making clinics more inviting and less isolating" and "having more corner clinics and condoms-only stores " suggests that the physical attractiveness of the agency is relatively less important for improving access than other strategies that would

increase availability or enhance convenience of care (e.g., clinic hours).

Cluster Rating Maps by Gender

Figures 6 and 7 present the cluster rating maps for females and males respectively. Several unique patterns emerge from these two maps suggesting that males and females may conceptualize access to services differently from one another. In particular, the primary conceptual domains are generally the same for males and females. However, whether and how domains are organized into sub-domains differ by gender. For instance, males have three clusters of service related items while the map for females show two service related clusters. The primary distinction appears to be that males separate access to contraceptive supplies from availability/convenience of services, while females combine access to supplies with access to services. Such conceptual distinctions are not surprising for two reasons. First, given that the most effect contraceptive methods for women are medical methods and require a visit to a health provider, women may have become accustomed to viewing access to contraceptive methods as almost synonymous with access to services. In contrast, condoms, the primary method for males, are available in convenience stores, pharmacies and other locations, as well as through provider agencies. Thus, males can secure their primary method of contraception without having to access reproductive health services.

Figure 6: Cluster Rating Map -- Females

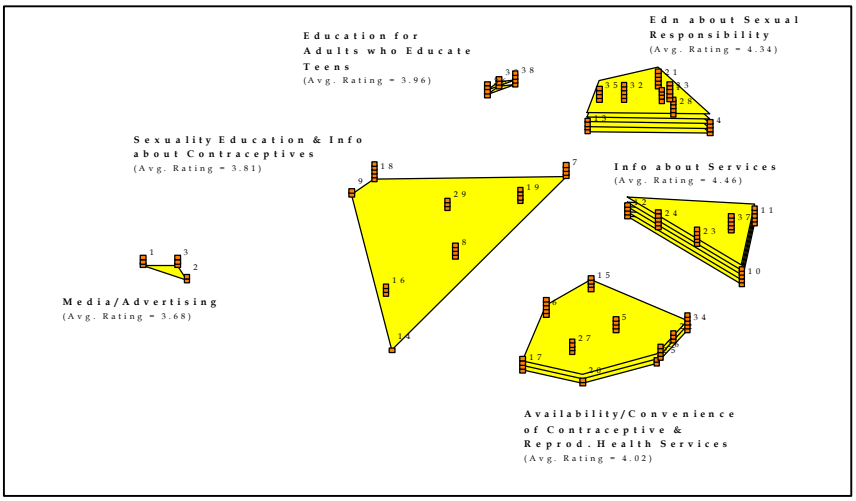
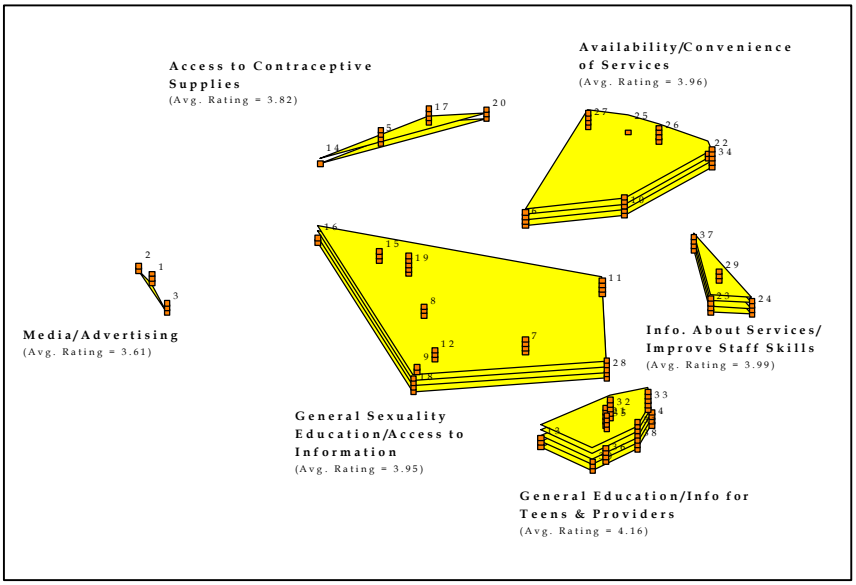


Figure 7: Cluster Rating Map for Males



Second, because of other factors that increase barriers to care for males relative to females (e.g., lack of male staff, few outreach services targeting males), males may not frequent reproductive health provider agencies like females. Thus, when males do attend clinics they may be seeking care for a specific medical condition unrelated to the need for a contraceptive method. Thus, males have come to view access to services and access to

supplies as distinct in light of their specific health care seeking behavior either due to the type of contraceptive methods used, or due to other barriers to care.

Another gender difference in cluster rating maps concerns conceptual domains focusing on education. In particular, maps for females show three education clusters. One cluster captures education about sexual responsibility, while a second encompasses sexuality education and information about contraception. The third cluster focuses on providing education specifically for adults who educate teens. In contrast, males organize the education related items into two primary clusters -- General Sexuality Education and Access to Information and Education for Teens and Providers.

Females also show somewhat higher cluster ratings in general, and have a wider distribution in their average ratings than males, suggesting they used the full 1 to 5 scale more consistently than the males. In addition, the cluster deemed by females to be relatively most important is the cluster labeled "Information about Services (avg. rating = 4.46), followed by "Education about Sexual Responsibility (Avg. Rating = 4.34), and Availability/Convenience of Services (Avg. Rating = 4.02). The most important cluster for males is "General Education/Info for Providers and Teens (Avg. Rating = 4.16), followed by Information about Services (Avg. Rating = 3.99), Availability/Convenience of Services (Avg. Rating = 3.96) and Sexuality Education/Access to Information (Avg. Rating = 3.95).

The least important cluster for both males and females is the Media/Advertising cluster (Avg. Rating = 3.61 for males and 3.68 for females).

For males we also note that the absolute value of average ratings across clusters quite similar. Thus, the extent to which there are indeed substantive differences in relative importance of various domains is probably limited.

Cluster Rating Maps by Social Class

Cluster rating maps by neighborhood social class illustrate 5 to 6 conceptual domains for accessing reproductive health services (Figures 8 & 9). However, only 4

primary conceptual areas are similar across both social class groups. These areas include:

- Media/Advertising
- Availability and Convenience of Services
- Education for Teens and Adults who Educate Teens
- Information about Services

In particular, we find that the conceptualization of education/information regarding sexuality and contraception differs according to social class. For instance, moderate SES youth (Figure 8) have one cluster for education about contraceptives and sexuality, while low SES youth have separate clusters, one for sexuality education and one for information about contraceptives and broader access to contraceptive supplies (Figure 9).

The most important clusters for the moderate SES teens are General Health Education/Information for Teen and Providers (avg. rating = 4.22) and Information about Services/Improve Staff Skills (avg. rating = 4.21). Next in relative importance among moderate SES teens includes the cluster on Education about Contraceptives and Sexual Health (avg. rating = 3.98) followed by Availability and Convenience of Services (avg. rating = 3.80). The cluster viewed by moderate SES participants as relatively least important for improving teens' access to reproductive health services is the Media/Advertising cluster with an average rating of 3.65.

Low SES youth show more similarities than differences with respect the relative importance of certain clusters. In particular, we find that the relative order of clusters is roughly the same, although the average ratings for various clusters is slightly different, albeit not statistically different. For instance, we find that Information about Services and General Health Education for Teens and Providers are viewed by low SES youth as being most important for improving teens' access to reproductive health services. Although the average rating of the Information about services cluster (4.25) is slightly higher than that of the General Health Education cluster (4.19). Low SES youth report Availability/Convenience of Services as the next most important cluster (average rating = 4.08) followed by Sexuality

Figure 8: Cluster Rating Map -- Moderate- SES Teens

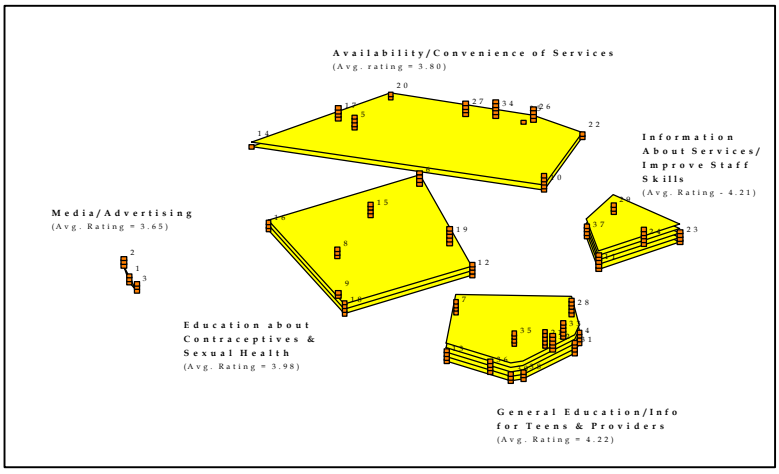
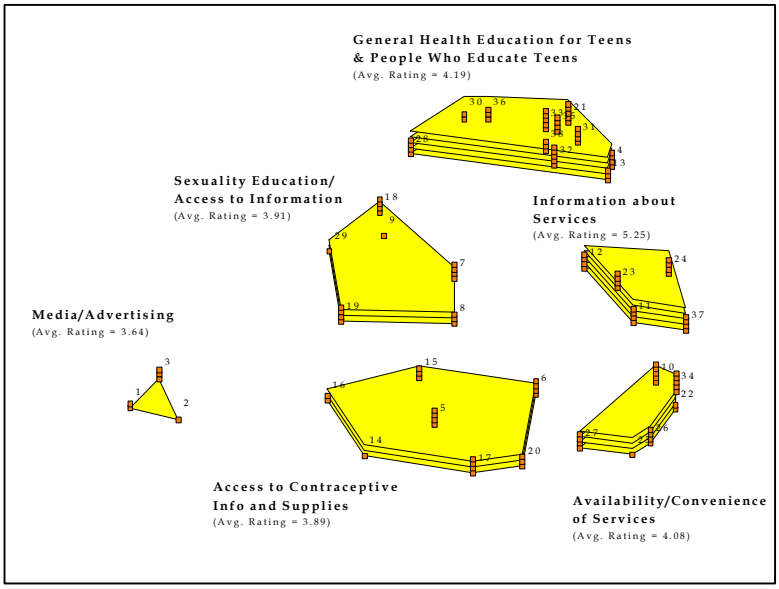


Figure 9: Cluster Rating Map - Low SES Teens



Education/Access to Information (3.91) and then Access to Contraceptive Information and Supplies (3.89). The relatively least important cluster is also the Media/Advertising cluster (avg. rating=3.64).

One additional point is worth noting regarding the cluster rating maps by social class. In particular, low SES youth distinguish between access to contraceptive services and supplies and availability and convenience of services, where moderate SES youth make no such distinction. That is, low SES youth perceive barriers to supplies as being separate from availability and convenience of services relative to moderate SES youth. This suggests that low SES youth may continue to experience barriers to receiving contraceptive information/supplies even when services are available. Is it unclear from these analyses whether such perceptions are a result of financial barriers, or other constraints at the staff- or agency-level. Nonetheless, the distinction between available services and accessing information and contraceptive supplies is clear among low SES teens, and does not emerge among youth from higher SES backgrounds.

Cluster Rating Maps by Race/Ethnicity

Figures 10 - 12 present cluster rating maps for White, Non-Hispanic, Black Non-Hispanic and Hispanic youth respectively. Across race/ethnicity, we find similarities as well as subtle differences in how youth organized the items regarding improving access to services for youth. In particular, three distinctions cluster rating maps by racial/ethnic subgroups emerged. First, we find four conceptual domains that are consistent across racial/ethnic groups. These include:

- Media/Advertising
- Availability/Convenience of Services
- Information About Services/Improve ways of Delivering Care
- Education (About Accessing Care, Contraceptive Info, Education for Adults who Educate teens).

Figure 10: Cluster Rating Map

White, Non-Hispanic

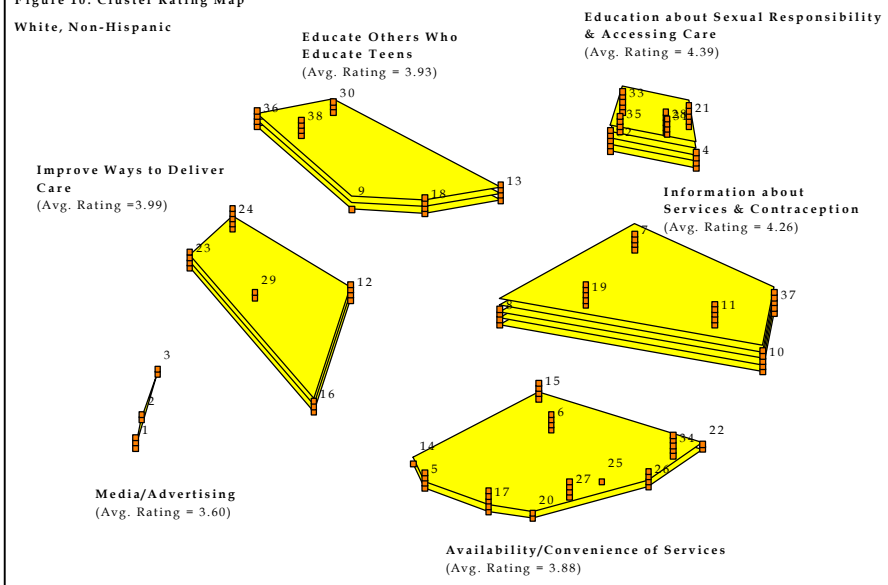
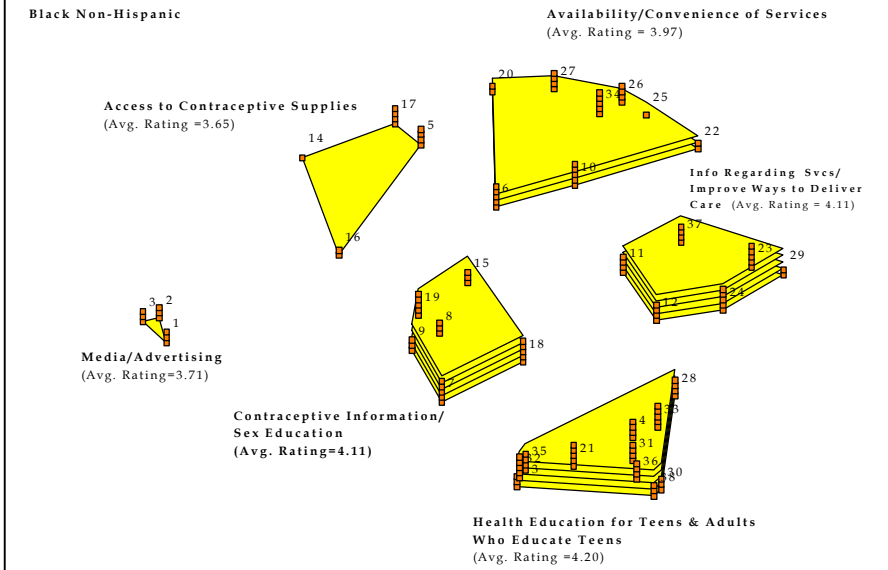
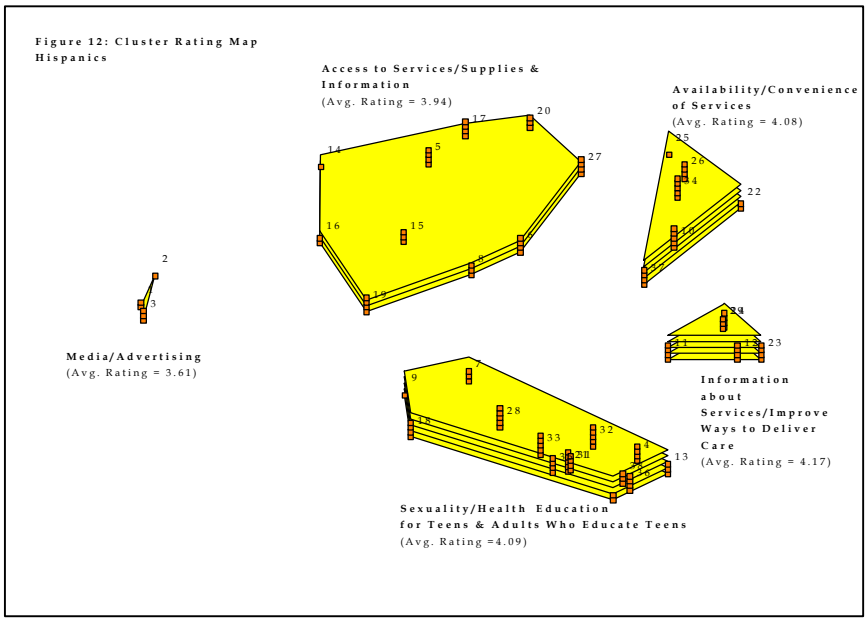


Figure 11: Cluster Rating Map

Black Non-Hispanic





However, sub-domains or the items contained within clusters differ across race/ethnicity. For instance, education related items are organized into two domains for white and African-American youth. For white youth these clusters include education for adults who educate teens and education about sexual responsibility and accessing health care. For African-American youth we find a cluster reflecting health education for teens and adults who educate teens and a cluster that includes items pertaining to contraceptive information and sexuality education. In contrast, Hispanic youth grouped their education related items into one cluster that encompasses both sexuality and contraceptive education, as well as special efforts to educate adults who work with teens.

Second, cluster rating maps for both Hispanic- and African-American participants show items regarding availability and convenience of services in a domain that is separate from items that address access to services/supplies and information. White youth, however, do not organize related service delivery items in that manner. Rather, cluster rating maps for white youth show only a service availability/convenience cluster.

Third, white you distinguish items that reflect ways to improve service delivery from items that reflect the provision of information regarding services. In contrast, non-white youth combine items across these two conceptual domains.

Finally, the relative order of importance of various clusters differs by race/ethnicity. For instance, among whites we find that the cluster with the relatively highest importance rating is that labeled "Education about Sexual Responsibility and Accessing Care". This cluster shows an average importance rating of 4.39. The second most important cluster among whites covers Information about Services and Contraception (average rating = 4.36). Improving ways to deliver care and educating others who educate teens are the third most important clusters for whites (average ratings of 3.99 and 3.93 respectively), followed by availability and convenience of services (average rating = 3.88). The media/advertising cluster is rated the relatively least important for improving teens' access to reproductive health services (average rating = 3.60).

Among African-American youth we also find education is considered most important for improving teens' access to services. However, the type of education deemed most important addresses the need for health education for teens and adults who educate teens (average rating = 4.20). Contraceptive Information/Sex Education and Information regarding Services and improving service delivery are the next most important clusters according to African-American youth. Both of these clusters had the same average rating of 4.11. Availability and Convenience of Services is the third most important (3.97), followed by Media/Advertising (3.71) and Access to Contraceptive Supplies. However, we note there is one statement in the Access to Contraceptives cluster for African Americans that has a relatively low importance rating[8]. In fact, removing this item increases the cluster rating from 3.65 to 3.90. Thus, this cluster becomes similar in importance to that of making services available and more convenient.

Among cluster rating maps for Hispanic youth we find Information about services/Improving ways to Deliver care as relative most important for improving access to teens (Avg. rating = 4.17). This cluster is followed in relative importance by

[8]The low rated statement is #14, Have condom rallies to distribute condoms (like toys for guns) program, which has an average rating of 2.90.

Sexuality/Health Education for Teens and Adults (4.09), and Availability/Convenience of Services (4.08). Next most important is the cluster on access to services and supplies (3.94), with Media/Advertising

with the lowest importance rating (3.61).

Finally, it is important to note that the least important cluster for Whites and Hispanics is the Media cluster (3.60 for Whites, 3.61 for Hispanics). This cluster can be viewed as least important for African-Americans as well, given the comment in the preceding paragraph regarding the lower average importance rating of one item.

Summary

Our effort to examine how youth conceptualize the notion of improving access to reproductive health services for youth has provided several important insights. First, the range of activities that teens believe would help to increase access to services is quite broad. Items go far beyond the realm of the health care delivery system, although teens perceive improving aspects of service delivery is still important for increasing access to reproductive health services. Items viewed as possible ways to improve access ranged from broad sexuality education that includes information about contraceptive methods, how they work and the importance of accessing services, to improving information about where services are located and how to access them. Teens also perceive better training for staff and education for adults who work with teens as important, as well as altering how services are delivered (e.g., more convenient hours, adolescent only clinics, and employing younger staff). Finally, although considered less important for improving access than other strategies, teens commented on the role that media/advertising plays in creating a context that can promote safe and responsible sexual behavior among adolescents.

Second, we find that youth organize the broad list of items in particular ways and view certain strategies and relatively more important for improving access. For example, across all groups, teens gave higher average importance ratings to items that encompassed education and information compared with items that encompassed modifications to service

delivery. Specifically, education/information items reflected the need for greater access to information/education or for making information more comprehensive in content (e.g., proving information about all methods of birth control or information about what to expect during a clinic visit). Also included in these constructs was a focus on improving the knowledge of adults who educate and work with teens, as well as increasing the knowledge of teens themselves. Improving the availability and convenience of services, however, generally followed the education related items in terms of relative importance.

With respect to enhancing service delivery, teens perceived increasing both the availability of services and the convenience of services as being important. That is, teens perceived a need for providing information, services and supplies at places where teens frequent (e.g., malls, mobile vans, or community centers) as well as within the school and health care setting. Improving the convenience of services included offering care at times during the day that are more convenient for youth (e.g., late afternoon, evening or weekend clinic hours) and having teen only clinics. Concept maps also illustrate the relative importance of improving service delivery strategies, such as strengthening staff capacity to work with teens, including the hiring of staffs who like to work with youth, staffs who are relatively younger and more male staff.

Finally, teens acknowledged that the media can often portray sexuality in ways that promote irresponsible rather than responsible behavior. While items in this domain were considered the least important for improving access, teens nonetheless found them as a part of the content for supporting/sustaining responsible sexual behavior among adolescents and for encouraging teens to access reproductive health services.

Subgroup Differences

Irrespective of race/ethnicity, gender or social class, we find teens in our sample perceive education related items as relatively more important for improving access to services for teens than other items more specific to service delivery strategies. Items pertaining to Media/Advertising are viewed as the least important for improving access. A few subtle but important distinctions across subgroups also emerged.

First, across gender our data show that males separate items that reflect accessing services from items that pertain to securing contraceptive supplies. In contrast, females combine items regarding services and supplies into one conceptual domain. We believe the difference in conceptualization reflects both patterns of service utilization among males and females, as well as the type of contraceptive methods predominantly used and available to females versus males. Specifically, the most effective methods of contraception for women require a medical visit, where as for males, the only method available to them are condoms which can be obtained in many locations other than a health care agency. We also acknowledge, however, that other barriers to services for males (e.g., few male staff relatively to female staff, nature of how services are provided, and the context of the service delivery environment) may limit male involvement with reproductive health services, and contribute to how they conceptualize this topic.

Across social class, we also find low SES youth separate availability and convenience of services from access to contraceptive information and supplies, while moderate SES youth do not. This suggests to us that low SES teens do not perceive availability and convenience as being synonymous with accessing contraceptive information and supplies. That is, even when services are available and convenient, information and supplies are not always easy to obtain. The reasons why low SES youth perceive these distinctions and moderate SES youth do not cannot be determined definitively from these data. However, it is possible that low SES youth confront additional barriers to information and contraceptive supplies that moderate SES youth do not. Such barriers may be financial barriers, staff bias or staff with limited ability to work effectively with low SES teens, or strategies for providing information to low SES clients.

A similar patterns was observed across racial/ethnic subgroups. In particular, data for non-white youth show one cluster for availability/convenience of services and one separate cluster for improving access to contraceptive information and supplies. White youth make no such conceptual distinctions. For reasons similar to those described above, we believe it is important for reproductive health provider agencies to

reflect on ways in which information about methods can be delivered to enhance the receptivity to low SES and ethnic minority youth. Provider agencies may also have to address financial or cultural barriers to accessing particular contraceptive methods.

Discussion and Implications

Three important implications for future reproductive health service delivery can be inferred from these findings. First, our data suggest that teens perceive a range of activities is needed to improve access to services for youth. However, activities that focus on providing comprehensive information about the importance of contraception and accessing services would be helpful in bringing teens into care. Furthermore, such activities are deemed by youth in our sample to be the *most* important and a first step toward improving access to reproductive health services. This suggests that comprehensive and aggressive community outreach is vital for improving teens access to reproductive health services. In particular, teens appear to need information about the importance of safe sex, about the types of methods that are available, the importance of seeking care early, where to go for care and what to expect during a clinic or health visit. This finding is particularly intriguing, in light of the fact that clinics often are not able to conduct extensive outreach efforts or due to limited or reduced funding, have to modify or eliminate outreach activities. Our data suggest, however, that cutting back or eliminating such efforts so further reduces access to services for adolescents. Reproductive health provider agencies may have to find ways to coordinate with other provider agencies to enhance their outreach efforts, and minimize the amount of human and fiscal resources needed to conduct on-going outreach to adolescents. Perhaps sharing an outreach coordinator with another provider agency, or coordinating with schools or other community-based youth service organizations may be helpful. Furthermore, funders should be educated about the importance of outreach efforts and encouraged to provide on-going funding for such efforts as they may be critical for brining young people in to care and sustaining their service utilization over time. Developing a formal youth provider network may be helpful. Agencies agree to work together to share information with their clients about linking with other clinic agencies in a nearby location, connecting with health educators at schools, or other community-based youth service organizations may help to consolidate efforts.

Second, once teens learn about where services are located and how to access them, there appears to be several ways in which providers can ensure teens will actually seek care and continue to use care over time. These activities include making services more convenient for teens, including changing the hours or days of the week when services are provided, or by offering adolescent only clinics. Agencies can strength staff skills so they are more competent at serving young people, understanding the issues that matter to teens, confronting any personal issues staffs have about working with adolescents, and employing staff, whenever possible, who are relatively younger, who are male and who truly enjoy working with youth. Again, fiscal and administrative constraints often preclude sites from providing formal and consistent in-service activities or from being more aggressive in recruiting clinic staff. However, if sites are committed to improving access to services for adolescents, they may have to explore cost effective ways to bringing on board staff who are trained to work with youth and staff who have a desire to work with adolescents, and to exploring ways to bring existing staff up to speed with such skills.

Third, subgroup differences in how youth conceptualize factors that improve access are particularly important for provider agencies. In particular, gender differences illustrate males have less exposure to the reproductive health care system than females, as they view accessing contraceptive supplies as distinct from accessing services in general. Similarly, cluster maps for low SES youth and youth of color show separate clusters for accessing contraceptive supplies and information and accessing services in general (availability and convenience of services). Both of these differences suggest a need for provider agencies to examine what aspects of the service delivery system continue to create barriers to care for male, low income and ethnic minority clients. In particular, agencies may have to consider whether outreach efforts are being targeted to such clients, or whether current strategies are appropriate or most effective for clients that are not white or female. The extent to which financial barriers play a role in accessibility of contraceptive methods for low-income and ethnic minority youth and whether and how such financial barriers can be minimized should also be explored.

In addition, these data suggest that agencies will need to examine patient-staff

interaction and staff capacity to work comfortably and effectively with male, low-income and ethnic minority clients. In particular, the fact that availability of services are viewed by males, low SES and ethnic minority youth as distinct from access to information and supplies suggests at least two very important things about the capacity of provider agencies to adequately meet the needs of these populations. First, these finding may suggest that information deemed important by males, low SES and minority youth is generally not being provided by reproductive health agencies, or the manner in which information is provided is inconsistent with how such youth take in or respond to information. Second, these findings could be interpreted to mean that staffs are less well equipped at interacting comfortable or effectively with clients other than those who are female or white or of more moderate social class. This does not mean that staff are unable to work with a broad range of clients, but rather that they may be less effective at working with diverse clients.

In short, analyses of concept mapping data suggest improving access to reproductive health services, as perceived by youth, will require a broad, comprehensive strategy. A strategy that includes the availability of comprehensive information about sexuality, contraceptives and services, where they are located and how to access them. This strategy also includes expanded and more aggressive outreach activities, with specific efforts to reach males, low income and ethnic minority youth. Finally, improved access will require modifying when and how services are delivered. It will also require providers to identify gaps in patient education and to employ more effective strategies for delivering patient education to special populations. Agencies may have to consider diversifying staff in terms of gender, age and race/ethnicity, and work to improve staff capacity to work with teens in a clinic or health care setting. Such modifications will require a true commitment on the part of providers to improving access, and to explore ways in which human and fiscal resources can be secured to ensure that modifications are indeed implemented.

This study indicates that teens still perceive barriers to reproductive health care, despite existing efforts to improve access. Furthermore, a broader more coordinated and aggressive approach to improving service delivery will be needed to improve access to reproductive health services for adolescents.