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## A Content Analysis of Preconception Health Education Materials: Characteristics, Strategies, and Clinical-Behavioral Components

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### Abstract

**Purpose**—Many health organizations and practitioners in the United States promote preconception health (PCH) to consumers. However, summaries and evaluations of PCH promotional activities are limited.

**Design**—We conducted a content analysis of PCH health education materials collected from local-, state-, national-, and federal-level partners by using an existing database of partners, outreach to maternal and child health organizations, and a snowball sampling technique.

**Setting**—Not applicable.

**Participants**—Not applicable.

**Method**—Thirty-two materials were included for analysis, based on inclusion/exclusion criteria. A codebook guided coding of materials' characteristics (type, authorship, language, cost), use of marketing and behavioral strategies to reach the target population (target audience, message framing, call to action), and inclusion of PCH subject matter (clinical-behavioral components).

**Results**—The self-assessment of PCH behaviors was the most common material (28%) to appear in the sample. Most materials broadly targeted women, and there was a near-equal distribution in targeting by pregnancy planning status segments (planners and nonplanners). “Practicing PCH benefits the baby’s health” was the most common message frame used. Materials contained a wide range of clinical-behavioral components.

**Conclusion**—Strategic targeting of subgroups of consumers is an important but overlooked strategy. More research is needed around PCH components, in terms of packaging and increasing motivation, which could guide use and placement of clinical-behavioral components within promotional materials.

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## Keywords

Content Analysis; Preconception Health; Health Education Materials; Prevention Research; Manuscript format: research; Research purpose: descriptive; Study design: content analysis; Outcome measure: other; Setting: state/national; Health focus: preconception health; Strategy: education; Target population age: youth, adults; Target population circumstances: all education levels, all income levels, all U.S. locations, all races/ethnicities

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## PURPOSE

During the past decade, there has been a rapid rise in the number of health organizations and practitioners in the United States promoting preconception health (PCH) behaviors and services to consumers. We know about promotional activities primarily through conferences and partnership-building efforts. For example, the 2005 National Summit on Preconception Care, the first national conference on PCH, included eight abstracts about marketing campaigns and tools for consumers.<sup>1</sup> The Third National Summit on Preconception Health and Health Care, held six years later, was expanded to include a consumer track with five panels that addressed topics related to PCH promotion to consumers.<sup>2</sup> Additionally, the Consumer Work Group, of the Preconception Health and Healthcare Initiative, first convened in 2005 to work towards increasing consumer awareness of PCH through social marketing.<sup>3</sup> The group continues to build a diverse network of partner organizations. The special supplement, to which this article belongs, is the first of its kind to document the many promotional activities that have been developed in recent years. As of this writing, however, peer-reviewed articles summarizing and evaluating PCH promotional activities are limited.

Much of what is currently available in the published literature regarding PCH promotion to consumers consists of formative audience research<sup>4-7</sup> and marketing strategy.<sup>8</sup> To our knowledge, published practice-based research—for example, case studies, environmental scans, and outcome evaluations—is lacking; yet this research can prove useful for practitioners looking to promote PCH to consumers with the intention of increasing awareness, changing attitudes, and increasing uptake of PCH behaviors and services to improve maternal and infant health outcomes.

The health education material is a common tool that reaches many subgroups of consumers, including those with limited access to health information via the Internet. Because knowledge about PCH promotional activities was limited at the time, this project was meant to be a pilot effort to explore, describe, and evaluate a small sample of the educational materials currently available.

## METHODS

### Design

We collected PCH educational materials and conducted a content analysis to evaluate the content of the materials, based on their characteristics, use of marketing and behavioral strategies, and inclusion of PCH subject matter.

## Sample

Because our awareness of organizations promoting PCH to consumers was low, we relied on several strategies for collecting materials. During the spring of 2009, we began by contacting organizations in the field of maternal and child health at federal agencies; national-, state-, and local-level non-profit organizations; and professional groups in our existing database of contacts. To our knowledge, all of these organizations had, in the past or present, promoted PCH to at least one audience. This database also included members of the Consumer Work Group which, at the time of collection, had about 12 members. We also developed a list of about 50 maternal and child health–focused organizations, which could potentially have PCH materials for consumers, and contacted each organization. We also relied on the snowball sampling technique for collecting materials by asking organizations to recommend other organizations that had developed PCH materials for consumers.

The sample included materials that described PCH and targeted a consumer audience. We included materials that described PCH and at least two or more of its components; materials were excluded if they did not include any supporting subject matter information about PCH or included only one PCH-related component (e.g., folic acid). Some materials in the sample did not contain PCH terminology (i.e., they promoted women’s or men’s reproductive health) but were included if the project team agreed that they reflected PCH conceptually; we also contacted the author to confirm its use for PCH promotion. Many materials included in the sample were available both in print and on the Web, but Web pages used for PCH promotion were excluded. Web pages warrant their own study; strategies used and content presented in Web materials may vary from those in print materials. Materials were excluded from the sample if they were no longer in circulation to consumers.

## Measures

A project team, including the authors of this article and two other health communication specialists who worked on PCH projects at the Centers for Disease Control and Prevention, developed a detailed codebook with codes and categories to guide systematic content analysis of the sample. A subset of the same project team coded all materials.

Information about PCH material characteristics was collected by using the following codes: type, author, language, and cost (Table 1). Several codes related to marketing and behavioral strategies were also included in the codebook, which we used as a way to measure the quality of PCH materials (Table 1). These codes—target audience, message framing, and calls to action—helped us gauge how well materials appealed to and motivated the audience to take action.

Developing a material for a specific target audience, typically a subgroup of the broad consumer audience, increases the chances that it will appeal to and meet the needs of its readers.<sup>9</sup> Demographic characteristics, such as sex and race/ethnicity, are common target audience variables and were thus included in the codebook. Couples were included as a third option within the sex category on the basis of literature indicating that partners can influence one another’s health behaviors.<sup>10</sup> Pregnancy planning status was also included as a target audience variable. “Planner” refers to a woman or man who plans for pregnancy in the next

1 to 2 years. “Nonplanner” refers to all other women and men of childbearing age, excluding those who have a medical or surgical reason for being unable to conceive. Research has shown pregnancy planning status to be a critical variable for targeting women and men with PCH messages because these two groups relate very differently to the topic—planners are actively thinking about pregnancy and working towards it and nonplanners dismiss pregnancy as a possibility altogether.<sup>11</sup> As a result, concern about the health of the baby motivates planners to perform PCH behaviors, and the health of the individual (woman or man) motivates nonplanners to perform PCH behaviors. When coding for target audience variables, we analyzed both text and images.

Message framing refers to communication about health outcomes in terms of benefits and threats.<sup>12</sup> When applied properly, message framing persuades the reader to attend to the topic, influencing both attitudes and behaviors. Message framing is an important strategy in PCH promotion because consumers are likely to be unfamiliar with the concept of PCH and how it affects their health.<sup>6,7</sup> Based on message framing theory and our knowledge of frames that could be used in PCH materials, four possible frames were included in the codebook (Table 1). We coded for the presence or absence of frames in each material by examining the content conceptually rather than coding for an exact wording match. Further, we coded only content about the broad concepts of PCH; in other words, messaging framing around individual topics (e.g., smoking cessation) within PCH were excluded. The presence or absence of specific calls to action was also coded to examine the ways in which materials motivate a reader to look for more information or take action.

Finally, evaluating the PCH subject matter included within each material is another way for us to measure the quality of the materials. PCH incorporates many components that can be organized by behaviors that consumers should practice (e.g., take 400 mcg of folic acid daily) or cease practicing (e.g., smoking), and clinical guidelines for health care providers (e.g., family history for genetic disorders). We thus used the term *clinical-behavioral components* as a way to describe PCH subject matter. The codebook contained a list of 19 possible components (Table 1). This list was derived from a comprehensive review of evidence for PCH topics<sup>13</sup> and consultation with three individuals who have subject-matter expertise in the topic of PCH. A miscellaneous category was included so that coders could write in other topics that appeared. We coded for the presence or absence of each component by using the text of the materials.

## Analysis

Both authors conducted three pilot rounds, in which a subsample of materials (five each round) were chosen at random, reviewed, and coded. Coding disagreements were discussed and, if necessary, adjustments were made to the codebook. Both coders independently reviewed and coded all materials. Any discrepancies between the authors were resolved through discussion. The kappa score for inter-rater agreement was .88. Scores above .80 indicate good to perfect agreement.<sup>14</sup>

## RESULTS

We collected 48 PCH materials, and the final sample included 32. Materials were excluded ( $n = 16$ ) for a number of reasons. Some materials did not target a consumer audience (19%). A few materials either promoted PCH broadly without any supporting subject matter information (13%) or promoted only one PCH component (31%). Some did not promote PCH at all (25%). Other materials were available online only (6%) or were no longer in circulation to consumers (6%). Of the included materials, seven types were collected; self-assessment of PCH behaviors was the most common (28%), followed by booklet (22%), brochure (16%), fact sheet (13%), book chapter/section (9%), flyer (9%), and wallet card (3%). Authorship of materials in the sample included national-level nonprofit/professional groups (25%), state health departments coauthoring with state-level nonprofit/professional groups (19%), state-level and local-level nonprofit/professional groups (16% each), state health departments (13%), medical centers (6%), and a federal agency and publishing company (3% each). Some organizations contributed multiple materials to the sample (Table 2). All materials had English-language versions, 22% were also available in Spanish, and one (3%) was available in Haitian Creole. Analysis included only English-language materials. More than half of the materials (56%) were available for free; the other materials were available for a fee.

Less than half of the materials (40%) used PCH terminology (i.e., “PCH” and/or “preconception care”). Most materials targeted women (72%), 22% targeted couples, and 6% targeted men. The miscellaneous category captured age as a primary segment for a few materials (9%), all of which targeted teens. Most materials did not specify a target race or ethnicity (88%)—either these materials did not use any images, used line-drawn (generic) images, or used a variety of women or men from different racial or ethnic backgrounds. African-Americans were targeted in 6% of materials and Hispanics/Latinas and Native Americans were each targeted in one (3%). Regarding pregnancy planning status, 56% of materials targeted nonplanners and 44% targeted planners. Nonplanner-targeted materials tended to contain language about getting pregnant “someday in the future,” while planner-targeted materials discussed pregnancy planning (e.g., “If you are planning to become pregnant ...”).

Overall, 89% of materials described benefits of practicing PCH behaviors and 40% described threats to not practicing PCH behaviors. The health of the baby was frequently included in both planner and nonplanner materials: “Practicing PCH behaviors benefits the health of the baby” was the most common message frame in materials targeted at both planners and non-planners and “not practicing PCH behaviors threatens the health of the baby” was included in 41% of materials targeted at nonplanners (Table 3). More than 60% of nonplanner materials used a maternal health-focused frame, and fewer planner-focused materials (36%) used this frame (Table 3).

In terms of calls to action, all materials recommend that the reader talk to a health care provider. “Call a hotline” (69%) and “visit a Web site” (53%) were the second and third most common calls to action. The miscellaneous category captured two additional calls to

action: “talk to your partner” was included in 41% of materials, and 6% suggested that the reader should educate herself/himself about pregnancy.

Most materials (94%) included clinical-behavioral components for women and 22% included clinical-behavioral components for men. We found a median of 17 components for women with a range of 5 to 34; we found a median of 8 components for men with a range of 2 to 22 (Table 4). The most common components for women were substance use and folate/folic acid; the most common components for men were substance use and nutrition. Miscellaneous components were also found in most of materials (88%), with some components appearing frequently within the sample (Table 4).

## DISCUSSION

A variety of organizations at all levels of public and clinical health are engaged in PCH materials development and dissemination. The self-assessment of PCH behaviors was the most common type of material, but comprised only 28% of the collection. Though this suggests that there is no one preferred format of material, the interactive kind (self-assessment) is often used.

We also found that the use of marketing and behavioral strategies in PCH materials varied widely. All materials included a call to action about talking with a health care provider. Most materials targeted women of childbearing age, but did not target a specific race or ethnicity. Only a few materials targeted an age group. Non-planners were targeted a little more than half of the time. Audience segmentation by pregnancy planning status did not necessarily influence messaging within the materials; message frames related to the benefits and threats to the baby’s health appeared frequently in materials for nonplanners, despite evidence to suggest that the audience does not relate to these types of messages.<sup>11</sup>

Few trends were found regarding PCH clinical-behavioral components. A wide range of components was found in the sample of materials, both for women and men. Substance use and folate/folic acid were the only components to appear in all or almost all of the materials for women; substance use and nutrition appeared most frequently in the sample of materials for men. We also found that almost all materials contained other components that were not in the codebook.

Results from this analysis are not generalizable to all PCH materials. Each material varied by type and length, which may have influenced the content, including message frames and PCH components used. Every effort was made to develop a codebook that would facilitate a systematic, accurate analysis of materials, but misinterpretations are possible given the scale and scope of the analysis. Our definition of a PCH material—based on our inclusion/exclusion criteria—likely influenced the materials in the sample and results.

Our findings regarding the lack of specific targeting by demographic variables and the fact that messages in many of the materials might not appeal to the pregnancy-planning segment it targeted allude to some of the challenges organizations face when promoting PCH behaviors and services to consumers. With limited funds available, as is frequently the case, organizations could be inclined to create generic materials that broadly address all women or

men of reproductive age, perceiving that this is the most efficient way to reach their population(s). However, materials are more likely to appeal and motivate when the content strategically targets a specific subgroup, or audience segment.<sup>9,15</sup> Unfortunately, primary audience segmentation data may not be available to those who promote PCH, and published literature on segmenting for PCH promotion has not been available until recently. Furthermore, pretesting materials with an audience (e.g., through a survey or focus group) to test for appeal, resonance, and motivation is expensive and, therefore, frequently does not happen as a part of materials development. Organizations that experience this dilemma may try to make the case for additional funds for pretesting, with the argument that it might be less expensive than developing generic materials that do not appeal to any audience in particular.<sup>16</sup>

Results related to PCH clinical-behavioral components suggest that each organization took its own approach to content development. Precisely what should be considered a component of PCH is beyond the scope of this article and continues to be an important topic of discussion among colleagues in the field.<sup>13,17</sup> Consensus and evidence around this matter, however, will have implications for content development for future PCH materials. We raise a couple of issues for consideration and further research. Research tells us that consumers know about and accept many of these components, but are not familiar with them in the context of PCH or in terms of PCH outcomes (health of woman, baby, etc.).<sup>6,18,19</sup> Promoting, even packaging, the components in such a way that consumers can remember them and associate them with the concept of PCH remains a challenge for all who work in the field of PCH promotion.<sup>8</sup> Some research has tackled the issue of packaging or bundling PCH,<sup>20</sup> but no resolution appears to be available at this time. Overburdening consumers with a long list of behaviors is a related challenge. Alongside PCH components, messages to increase self-efficacy is one suggested way forward and needs more attention from PCH researchers. Future research should also examine the specific strategies used in PCH materials and other promotional activities in terms of impact on knowledge, awareness, and behavior change.

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## References

1. Boulet SL, Johnson K, Parker C, et al. A perspective of preconception health activities in the United States. *Matern Child Health J.* 2006; 10(5 suppl):S13–S20. [PubMed: 16775758]
2. Before, between, & beyond pregnancy. 3rd National Summit on Preconception Health and Healthcare: tracks and sessions; Available at: <http://www.beforeandbeyond.org/uploads/PHHC.html>
3. Johnson K, Posner SF, Biermann J, et al. Recommendations to improve preconception health and health care—United States. *MMWR Recomm Rep.* 2006; 55(RR-6):1–23. [PubMed: 16617292]
4. Frey KA, Files JA. Preconception healthcare: what women know and believe. *Matern Child Health J.* 2006; 10(5 suppl):S73–S77. [PubMed: 16775757]
5. Delgado C. Undergraduate student awareness of issues related to preconception health and pregnancy. *Matern Child Health J.* 2008; 12(6):774–782. [PubMed: 17975718]

6. Canady RB, Tiedje LB, Lauber C. Preconception care & pregnancy planning: voices of African American women. *MCN Am J Matern Child Nurs.* 2008; 33(2):90–97. [PubMed: 18327107]
7. Mitchell EW, Levis DM, Prue CE. Preconception health: awareness, planning, and communication among a sample of US men and women. *Matern Child Health J.* 2012; 16:31–39. [PubMed: 20734124]
8. Prue CE, Daniel KL. Social marketing: planning before conceiving preconception care. *Matern Child Health J.* 2006; 10(5 suppl):S79–S84. [PubMed: 16755400]
9. Slater MD. Theory and method in health audience segmentation. *J Health Commun.* 1996; 1:267–283. [PubMed: 10947364]
10. Falba TA, Sindelar JL. Spousal concordance in health behavior change. *Health Serv Res.* 2008; 43(1):96–116. [PubMed: 18211520]
11. Prue CE, Flores AL, Daniel KL. Broadcasting behavior change: a comparison of the effectiveness of paid and unpaid media to increase folic acid awareness, knowledge, and consumption among Hispanic women of childbearing age. *Health Promot Pract.* 2007; 8:145–153. [PubMed: 17003248]
12. Rothman AJ, Salovey P. Shaping perceptions to motivate health behavior: the role of message frames. *Psychol Bull.* 1997; 121(1):3–19. [PubMed: 9000890]
13. Jack B, Atrash H. Preconception health and health care: the clinical content of preconception care. *Am J Obstet Gynecol.* 2008; 199(6B suppl):S257–S395. [PubMed: 19081419]
14. Burla L, Knierim B, Barth J, et al. From text to codings: intercoder reliability assessment in qualitative content analysis. *Nurs Res.* 2008; 57(2):113–117. [PubMed: 18347483]
15. Pasick, RJ. Socioeconomic and cultural factors in the development and use of theory. In: Glanz, K.; Lewis, FM.; Rimer, BK., editors. *Health Behavior and Health Education.* San Francisco, Calif: Jossey-Bass, Inc; 1997. p. 425-440.
16. National Cancer Institute. [Accessed November 17, 2011] Pink Bookmaking health communication programs work. Available at: <http://www.cancer.gov/cancertopics/cancerlibrary/pinkbook/page1>
17. Broussard DL, Sappenfield WB, Fussman C, et al. Core state preconception health indicators: a voluntary, multi-state selection process. *Matern Child Health J.* 2011; 15:158–168. [PubMed: 20225127]
18. Squiers L, Mitchell EW, Levis DM, et al. Consumers' perceptions of preconception health. *Am J Health Promot.* 2013; 27(suppl):S10–S19. [PubMed: 23286658]
19. Lewis MA, Mitchell EW, Levis DM, et al. Couples' notions of preconception health: implications for framing social marketing plans. *Am J Health Promot.* 2013; 27(suppl):S20–S27. [PubMed: 23286659]
20. King, KW.; Freimuth, V.; Lee, M. Preconception health message bundling study. Presentation prepared for the Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities; November 2008;



**SO WHAT? Implications for Health Promotion Practitioners and Researchers****What is already known on this topic?**

As of this writing, peer-reviewed articles have yet to summarize or analyze preconception health (PCH) promotional activities, including PCH health education materials.

**What does this article add?**

A variety of organizations at all levels of public and clinical health are engaged in PCH materials development and dissemination. Most materials included in this report did not target a specific audience; targeting would increase the chances of appealing to consumers and motivating change. Practitioners would benefit from information on effective communication strategies for promoting preconception health among consumers, including how to target the groups they serve, package health care messages, and increase consumer motivation for behavior change.

**What are the implications for health promotion practice or research?**

Practitioners will have greater awareness of some of the limitations and challenges for promoting PCH, especially the need to target materials for a particular audience. Practitioners who wish to develop PCH materials may also have greater awareness of some important marketing and behavioral strategies they can apply in order to increase the chances of raising awareness among consumers, changing attitudes, and adopting PCH behaviors and services to improve maternal and infant health outcomes. More research is needed around PCH components, in terms of packaging and increasing motivation, which could guide use and placement of PCH subject matter within promotional materials.

**Table 1**

## Codes and Categories Used for Content Analysis of Preconception Health (PCH) Materials

Codes	Categories*
Type	Book chapter/section, booklet, brochure, fact sheet, flyer, self-assessment, wallet card
Author(s)	Nonprofit/professional group (national, state, or local), state health department, state health department and nonprofit/professional group, medical center, federal agency, commercial publishing company
Language	English Spanish Other - write in
Cost	Free, fee
Target audience	Sex: women, men, women and men (couples) Race/ethnicity: Caucasian, African-American, Hispanic, Native American, other, none specified Pregnancy planning status: planners, nonplanners Other - write in
Message frames	Practicing PCH behaviors benefits the health of the woman/man Practicing PCH behaviors benefits the health of the baby Not practicing PCH behaviors threatens the health of the woman/man Not practicing PCH behaviors threatens the health of the baby
Calls to action	Talk to your health care provider Visit a Web site Call a hotline Other - write in
Clinical-behavioral components of PCH	Family planning: reproductive life plan Weight status Nutrition Physical activity Folate and folic acid Immunizations Substance use (includes alcohol, tobacco, and/or drug use) Sexually transmitted infections Infectious disease Medical conditions Psychiatric conditions Family genetic history Environmental or occupational exposure Psychosocial Medication Reproductive history Oral health Maternal or paternal age Infertility related to cancer treatment Other - write in

\* Categories listed across a row are mutually exclusive; categories listed down the column can co-occur.

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**Table 2**

Preconception Health Educational Materials Included in the Sample, by Author(s), Title, and Type

Author(s)	Title	Type
American College of Obstetricians and Gynecologists	Good Health Before Pregnancy	Booklet
	Planning Your Pregnancy	Booklet
California Preconception Care Initiative	Every Woman, Every Time	Fact sheet
Channing Bete	Your Health Before Pregnancy	Brochure
Department of Alcoholic Beverage Control, Utah Chapter of March of Dimes, Utah Department of Health, Utah Fetal Alcohol Coalition	A Healthy Child Begins Before Birth	Flyer
Escambia County (Florida) Healthy Start Coalition, Inc.	Preconception Health Guide	Self-assessment
	Preconception Health Screening & Tune-Up Form	Self-assessment
	Your Reproductive Life Plan	Self-assessment
	Your Reproductive Life Planning Guide	Self-assessment
Every Woman Florida, Florida Chapter of March of Dimes, Florida Department of Health	Healthy Behaviors	Fact sheet
Florida Chapter of March of Dimes, Florida Department of Health	Good Health Matters	Brochure
Florida Department of Health	"Before You Get Pregnant" in <i>Moms and Babies. Be Healthy. Stay Healthy</i>	Book chapter/section
Kentucky Cabinet for Health and Family Services	Healthier Lifestyles for Family Planning	Fact sheet
LA Best Babies Network	How Healthy Are You?	Self-assessment
March of Dimes	9 Things to Do Before Getting Pregnant	Wallet card
	Are You Ready?	Booklet
	Are You Ready for a Baby?	Booklet
	I Want My 9 Months (Heather)	Flyer
	I Want My 9 Months (Thalia)	Flyer
	"Preparing for the Blessing" in <i>The Coming of the Blessing</i>	Book chapter/section
National Women's Health Information Center	"Pregnancy" in <i>The Healthy Woman: A Complete Guide for All Ages</i>	Book chapter/section
North Carolina Public Health, North Carolina Healthy Start Foundation	Are You Ready to Be a Dad?	Brochure
	Are You Ready to Be a Mom?	Brochure
	The Body Maintenance Manual	Booklet
Ohio University Medical Center	Preconception Care: Things to Do Before You Become Pregnant	Fact sheet
Oklahoma Department of Public Health	Women's Health. Preconception Health.	Booklet
Planned Parenthood Association of Utah, University Health Care, Utah Chapter of March of Dimes, Utah Department of Health	You're a Busy Woman!	Self-assessment
Sutter Teen Programs	My Life Plan	Self-assessment
Utah Department of Health	You're a Busy Teenager!	Self-assessment
Wisconsin Association for Perinatal Care	Becoming a Parent	Booklet
	Becoming a Parent	Brochure
	Becoming a Parent Preconception Checklist	Self-assessment

**Table 3**

Frequency of Message Frames Used in Preconception Health (PCH) Materials, by Target Audience (Pregnancy Planning Status)

	Planners, No. (%)	Nonplanners, No. (%)
Total materials	11 (100)	17 (100)
Practicing PCH behaviors benefits the health of the woman/man.	3 (27)	9 (53)
Practicing PCH behaviors benefits the health of the baby.	10 (91)	12 (71)
Not practicing PCH behaviors threatens the health of the woman/man.	1 (9)	2 (12)
Not practicing PCH behaviors threatens the health of the baby.	2 (18)	7 (41)

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**Table 4**

Frequency of Clinical-Behavioral Components and Most Common “Other” Components, by Target Audience (Sex\*)

	Women, No. (%)	Men, No. (%)
Total materials	30 (100)	7 (100)
Family planning; reproductive life plan	25 (83)	4 (57)
Weight status	17 (57)	3 (43)
Nutrition	24 (80)	6 (86)
Physical activity	22 (73)	4 (57)
Folate and folic acid	29 (97)	0 (0)
Immunizations	23 (77)	2 (29)
Substance use	30 (100)	6 (86)
Sexually transmitted infections	20 (67)	4 (57)
Infectious disease	7 (23)	0 (0)
Medical conditions	26 (87)	2 (29)
Psychiatric conditions	4 (13)	2 (29)
Family genetic history	21 (70)	3 (43)
Environmental or occupational exposure	20 (67)	3 (43)
Psychosocial	22 (73)	2 (29)
Medication	24 (80)	4 (57)
Reproductive history	7 (23)	1 (14)
Oral health	19 (63)	2 (29)
Age, maternal or paternal	6 (20)	1 (14)
Infertility related to cancer treatment	0 (0)	0 (0)
Stress management <sup>†</sup>	13 (43)	5 (71)
Menstruation and ovulation <sup>†</sup>	11 (37)	–
Emotional health <sup>†</sup>	9 (30)	–
Attend partner’s preconception checkup <sup>†</sup>	–	3 (40)
Hormone/reproductive problems <sup>†</sup>	–	3 (40)

\* The couples segment was excluded from coding and analysis of preconception health clinical-behavioral components.

<sup>†</sup> Most common “Other” component.