Objective: To learn more about young women’s understanding of the term Pap smear.

Design: Self-administered survey.

Setting: UMass Memorial Adolescent Clinic.

Participants: Female patients 14 years or older (and their mothers when available) who visited the clinic between June 10 and August 9, 2002.

Main Outcome Measures: Accuracy of participants’ written definition for the term Pap smear and knowledge that a “Pap smear” is a test for cervical cancer and not synonymous with a pelvic examination, sexually transmitted disease test, pregnancy test, or checkup.

Results: Three (2.7%) of the 111 adolescent participants provided an accurate definition of the term Pap smear. Sixty-eight percent mistakenly believed that a Pap smear was the same as a pelvic examination. Age, history of sexual intercourse, and having had a Pap smear correlated with a better Pap smear definition rating.

Conclusions: Remarkably few patients who participated in this study understood the meaning of the term Pap smear. Confusion about gynecologic terms may hinder efforts to enhance compliance with sexually transmitted disease and cervical cancer screening. Educational initiatives are needed to improve young people’s comprehension and to prevent misunderstandings about gynecologic care and miscommunication between patients and their health care providers.

information could benefit both providers and patients by guiding the development of educational efforts that may be needed to decrease potential miscommunication between patients and their health care providers regarding gynecologic care.

### METHODS

#### PARTICIPANTS

The target population consisted of a consecutive sample of 141 female patients, 14 years or older, visiting the UMass Memorial Adolescent Clinic in Worcester for any reason between June 10 and August 7, 2002. When available, mothers of participating patients were invited to participate. Patients younger than 18 years who were not accompanied by a parent and patients who were unable to understand the consent form well enough to give informed consent were not eligible. All participants provided written informed consent. Parents of patients younger than 18 years also gave written permission for participation. The study protocol and consent procedures were approved by the University of Massachusetts Medical School Committee for the Protection of Human Subjects in Research.

#### SURVEY ADMINISTRATION

Participants completed a brief, self-administered, paper-and-pencil survey before meeting with their health care provider. When mothers were present, patients and mothers were asked not to discuss their answers with each other. Patients and mothers each received their own survey and clipboard. After completing the survey, participants were given the opportunity to ask the research assistant questions about the terms used in the survey and also encouraged to ask questions of their provider. Demographic data included age, race, and ethnicity. Participants’ knowledge about Pap smears was assessed using 2 separate questions. The first question (Pap smear definition) was open ended and requested that the participant provide a written definition of the term Pap smear. Participants were asked, “In your own words, please describe what is meant by a Pap smear (also called a Pap test).” Participants were given the opportunity to check a box if they had no idea.

The second question (Pap smear synonyms) asked participants, “Please check all of the choices that mean the same thing as Pap smear.” Choices included “pelvic exam,” “test for STD [sexually transmitted disease] such as chlamydia or gonorrhea,” “test for HPV,” “checkup,” “test for cervical cancer,” “test for pregnancy,” “none of the above,” and “I really have no idea.” Finally, participants were asked if they thought they had ever had a Pap smear, if they had ever been tested for an STD, and if they had ever had sexual intercourse. Mothers and patients received identical surveys except that mothers were not asked if they had ever had sexual intercourse. Mothers and patients were invited to participate. Patients younger than 18 years who were not accompanied by a parent and patients who were unable to understand the consent form well enough to give informed consent were not eligible. All participants provided written informed consent. Parents of patients younger than 18 years also gave written permission for participation. The study protocol and consent procedures were approved by the University of Massachusetts Medical School Committee for the Protection of Human Subjects in Research.

#### STATISTICAL ANALYSIS

Pap smear definitions were independently rated by 2 of the investigators (D.R.B. and B.M.W.) for accuracy using the following codes: 0, no idea (either checked “I really have no idea” or gave no answer); 1, vague idea (had some understanding that it has to do with a gynecologic examination, often using words such as uterus or vagina); 2, good understanding (used the word cervix or cancer, may have identified it as a test for cervical cancer along with some incorrect information); and 3, excellent understanding (correctly identified it as a test for cervical cancer and included no incorrect information). The Cohen κ was used to assess interrater agreement. Following the initial independent ratings, discordant scores were discussed between the 2 investigators, and a final score was agreed on.

Correct responses to the Pap smear synonyms question were summed, and patients were given a score from 0 to 5. They received 1 point if they checked either “test for HPV” and/or “test for cervical cancer.” They also received 1 point each for not checking “pelvic exam,” “test for STD,” “checkup,” and “pregnancy test.” (No points were given for checking or not checking “none of the above” or “I really have no idea.”)

Data analyses were performed using SPSS statistical software version 11.3 (SPSS Inc, Chicago, Ill). Frequency distributions were used to describe the cohort, and Pearson R and Cramer V were used to test for associations among variables. Multivariate linear regression was used to determine which variables were independently associated with Pap smear knowledge.

#### RESULTS

### PARTICIPANT CHARACTERISTICS

Of the 141 young women who attended the adolescent clinic during the study period, 20 were younger than 18 years and not accompanied by a parent and 3 were unable to understand the consent form well enough to give informed consent. Of the 118 eligible patients, 7 declined due to lack of interest, leaving 111 participants. The participants ranged in age from 14 to 24 years (mean [SD] age, 18.1 [2.4] years). Forty-six participants were accompanied by their mother. Ages of participants accompanied by their mother ranged from 14 to 20 years (mean [SD] age, 16.3 [1.8] years). Additional demographics are given in Table 1.

#### SURVEY RESULTS

Investigator ratings for 12 (7.7%) of the 156 Pap smear definitions were discordant. The Cohen κ for interrater reliability was 0.89, which is considered very good agreement. 12 Overall understanding of the term Pap smear was remarkably low. Pap smear definitions given by 75% of the

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**Table 1. Participant Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Patients (n = 111)</th>
<th>Mothers* (n = 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD) age, y</td>
<td>18.1 (2.4) [14-24]</td>
<td>42.9 (6.2) [32-55]</td>
</tr>
<tr>
<td>Race/ethnicity, No. (%)†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>20 (19)</td>
<td>5 (11)</td>
</tr>
<tr>
<td>White</td>
<td>69 (64)</td>
<td>36 (80)</td>
</tr>
<tr>
<td>African American</td>
<td>7 (6)</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Asian</td>
<td>3 (3)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>9 (8)</td>
<td>0</td>
</tr>
<tr>
<td>Medical history, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever had a Pap smear</td>
<td>66 (59)</td>
<td>44 (98)</td>
</tr>
<tr>
<td>Ever been tested for an STD</td>
<td>58 (52)</td>
<td>24 (53)</td>
</tr>
<tr>
<td>Ever had sex</td>
<td>77 (69)</td>
<td>NA</td>
</tr>
</tbody>
</table>

Abbreviations: NA, not applicable; STD, sexually transmitted disease.

*When available.
†Data missing for 3 participants.
adolescent participants were rated as “no understanding” or “vague understanding.” Only 3 adolescent participants (2.7%) accurately defined Pap smear, and only 2 of these 3 appropriately checked only “test for cervical cancer” and/or “test for HPV” as Pap smear synonyms. The other participant incorrectly checked “pelvic exam” and “test for STD” as Pap smear synonyms. The Pap smear definition ratings of the adolescent clinic participants were positively correlated with patient age, ever having had sexual intercourse, and report of having had a Pap smear. For the subset of patients whose mothers also completed a survey, mother and daughter Pap smear synonym scores and Pap smear definition ratings were not significantly correlated. For both adolescent participants and mothers, Pap smear definition ratings were highly correlated with correctly checking only “test for HPV” and/or “test for cervical cancer” as synonymous with Pap smear; however, only 2 adolescent participants correctly identified Pap smear synonyms.

Almost 80% of adolescent participants who had had sexual intercourse incorrectly checked “pelvic exam” and/or “test for STD” as synonyms for Pap smear compared with approximately 40% of adolescents who had not had intercourse. On the other hand, more than half of those who had not had intercourse checked “I really have no idea” in response to synonyms for Pap smear compared with only 6% of those who had had intercourse. Additional Pap smear knowledge results are summarized in Table 2 and Table 3.

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Multivariate linear regression findings demonstrated that not having had intercourse was the only variable that predicted a higher number of correctly checked Pap smear synonyms and explained 4.4% of the variability in number of correct synonyms checked. A higher Pap smear definition rating was predicted by having had intercourse, older age, and non-Hispanic ethnicity. These 3 variables explained 17.4% of the variability in Pap smear definition rating.
Remarkably few patients who participated in this study understood the meaning of the term Pap smear. Furthermore, more than two thirds of clinic participants believed that a Pap smear is synonymous with a pelvic examination. This finding is concerning for several reasons. Misunderstandings about the meaning of Pap smear have the potential to interfere with communication between patient and health care provider. A patient may ask her provider to perform a Pap smear when she really would like a pelvic examination and/or STD testing performed. Conversely, a provider may ask a patient when she last had a Pap smear, and the patient may reply with the last time she received a pelvic examination for reasons other than obtaining a Pap smear. Likewise, patients who have received STD testing in an emergency department setting may mistakenly believe that they have successfully fulfilled their annual Pap smear screening responsibility. Not all providers routinely test patients for STDs when obtaining a Pap smear. Yet, a patient who receives a Pap smear may incorrectly assume that she has been tested for STDs.

The recent changes to the cervical cancer screening guidelines published by the ACS and the American College of Obstetricians and Gynecologists (ACOG) cervical cytology screening guidelines also could be misunderstood by patients who incorrectly believe that a Pap smear is the same as a pelvic examination and/or an STD check. Although the new guidelines recommend delay of the first Pap smear until 3 years following initiation of sexual intercourse or the age of 21 years, whichever comes first, annual STD screening is recommended for all sexually active women younger than 25 years. It will be important for providers to make sure that patients truly understand the difference between a Pap smear and other gynecologic care when communicating the ACS and ACOG guideline changes to their patients.

Even though a history of having had sex correlated with a better Pap smear definition rating, only 1 of 77 sexually experienced participants in this study understood that a Pap smear was a test for cervical cancer and/or HPV and not synonymous with a pelvic examination, test for STD, or checkup. This finding suggests that as a society we may be waiting too long to make sure that our youth understand the correct terms used to describe gynecologic health care.

Despite the fact that a substantial proportion of participating mothers understood the term Pap smear, none of their daughters, half of whom were sexually experienced, shared this understanding. Increased communication between mothers and daughters might improve female adolescents’ understanding of gynecologic care. Previous work by Hutchinson et al suggests that if discussed in the context of promoting sexual health, this type of communication might also have a positive influence on reducing sexual risk behaviors.

Our results are consistent with those from similar studies that demonstrate that substantial numbers of participants misunderstand the purpose of the Pap smear. However, only 2 other investigators have commented on the confusion many women have between a Pap smear and a pelvic examination. Anecdotal experience suggests that many adolescent girls and young adult women confuse the terms Pap smear and pelvic examination. However, there is limited literature available to support this statement. We have demonstrated that only a few adolescent girls and young adult women attending a hospital-based adolescent clinic have an accurate understanding of the term Pap smear. Furthermore, most participants believed that Pap smear is synonymous with pelvic examination. These results indicate a need for further education so that young women are better able to communicate with health care providers and more accurately understand gynecologic health care recommendations.

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REFERENCES


