

Exploring Sexual Health Among Female Sexually Transmitted Disease Clinic Patients, San Francisco 2010

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Background: Current data on sexual health in the United States is limited, in part, because of a lack of measurement tools. It is difficult for programs to develop a holistic approach to improving sexual health that is data-driven and evaluable without a tool that encompasses sexual health beyond the absence of disease. The objective of this study was to understand possible factors associated with sexual health and reported differences in sexual health among women.

Methods: We conducted a survey measuring sexual health among women seeking care at the municipal sexually transmitted disease (STD) clinic in San Francisco between January 25, 2010, and June 15, 2010. Records were matched on variables including basic demographics, reason for visit, symptoms at visit, history of an STD, and STD diagnosis at the visit.

Results: A total of 822 women completed the questionnaire during the study period. Women reporting no recent sexual activity reported feeling more insecure, angry, isolated, and limited because of health compared with women with recent sexual activity. However, few differences were seen among women based on symptoms and diagnosis at visit.

Discussion: Given the minimal differences based on symptoms and disease, this suggests that there are other factors that impact the quality of life and sexual health. Creating tools that can be used to measure sexual health is a necessary first step for programs to understand the sexual health of a community. More broad-based assessments of sexual health in a variety of populations will be critical to identifying points of intervention and progress toward success.

The World Health Organization (WHO) defines sexual health as the “state of physical, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity.”¹ It further states that “sexual health requires a positive attitude and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence.”¹ Although the Centers for Disease Control and Prevention (CDC) has recently made improvements in sexual health a key priority, sparse data on the current state of sexual health in United States exist.² Current data on the state of sexual health in the United States are vital to ensure success in reaching the goals of CDC’s sexual health promotion mission.

Sexually transmitted infections are associated with increased risk of poor birth and reproductive health outcomes^{3–9} as well as increased risk of HIV transmission and acquisition.^{10–12} However, a sexually transmitted disease (STD) diagnosis may also have large impacts on sexual health and overall quality of life. Given the fact that there are an estimated 19 million new STD infections annually,¹³ the impact of an STD diagnosis on sexual health may represent a large amount of avoidable morbidity. These issues have almost exclusively been examined in the context of infection with human papillomavirus (HPV)^{14–18} and herpes simplex virus (HSV).^{19–21} Sexual health is often studied in the context of reproductive and gynecologic conditions, and we are not aware of data on broader examinations of sexual health.^{22–25} Given this deficiency, it is difficult for programs to develop a holistic approach to improving sexual health that is data-driven and evaluable.

The objective of this study was to describe sexual health measures of women seeking care at our STD clinic and whether reported differences in sexual health were seen based on whether the woman was experiencing symptoms of an STD or was diagnosed as having a STD at that visit.

METHODS

A survey of women seeking care at San Francisco City Clinic, the only municipal STD clinic in San Francisco, was conducted between January 25, 2010, and June 15, 2010. A convenience sample of English-speaking women aged at least 15 years seeking clinic services during this period were offered the questionnaire during clinic registration. If a woman declined or was not offered the questionnaire, this was not recorded. Because women were offered the questionnaire at registration, those who had multiple visits during the study period may have completed the questionnaire multiple times. Because individual risk and quality of life measures could change throughout the period, we did not limit the results to the first survey completed. Questionnaires contained the chart number and date of visit but no other identifying information. Records were then matched on these variables with the electronic clinic database to determine basic demographics, reason for visit, whether the woman was symptomatic at visit, if the woman had a history of an STD, and if the woman was diagnosed as having an STD at that visit. Symptomatic status was based on both self-report and clinician findings at the visit; history of STD was based on previous reports of a reportable condition or diagnosis at the clinic. Sexually transmitted disease included in the analysis were chlamydia, gonorrhea, syphilis, bacterial vaginosis (BV), trichomoniasis, and pelvic inflammatory disease (PID). Registration staff explained that the survey was confidential but not anonymous and that participation was voluntary.

Given the lack of standardized tools or CDC guidance for assessing sexual health, we modified and combined a variety of tools in developing our instrument. The survey instrument included portions of a WHO survey (WHO Quality of Life BREF) that examines physical health, psychological health, social relationships,

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and environments to measure overall sexual health²⁶ as well as the Female Sexual Function Index (FSFI), which measures sexual functioning in women including satisfaction and arousal.²⁷ To assess whether women seeking care at San Francisco City Clinic had experienced intimate partner violence, 2 brief questionnaires were used—the Hurt, Insult, Threaten, and Scream Scale and the Partner Violence Screen survey.^{28,29} Additional questions about current birth control use, current children, and current attempts to conceive children were added.

The survey was approximately 3 pages and consisted of 5-point Likert scale questions, yes/no questions, multiple choice, and open-ended responses. For the Likert scale responses, the 2 highest categories were combined and compared against other responses (e.g., “always” and “most of the time” were compared against “some of the time,” “few times,” and “never”). Results were stratified by reported sexual activity in the previous 2 weeks, diagnosis of STD at visit, and by whether the patient was symptomatic at the time of visit. If women said that they had no sexual activity (a response option) in the prior 2 weeks in any of the FSFI questions, they were categorized as no sexual activity. Women reporting no sexual activity in the previous 2 weeks were excluded from the analyses stratified by symptomatic and diagnosis at visit. Pearson χ^2 test was used to compare the differences between women seen at the STD clinic with and without symptoms and women who were and were not diagnosed as having an STD at the visit where the survey was completed. In addition, we conducted a sensitivity analysis that excluded BV from the current STD variable; however, there were no differences found in the quality of life measures when BV was excluded. Therefore, these data are not presented.

All analyses were done using SAS version 9.2 (SAS Institute Inc., Cary, NC). Because these analyses were done for public health evaluation and planning, this study was considered exempt from human subjects' considerations in accordance with the Code of Federal Regulations, Title 45.

RESULTS

Throughout the study period (January 25 to June 15, 2010), 1784 female visits occurred in the clinic, of which 822

(46.1%) completed a questionnaire. Less than 10% of women completed the survey more than once during the study period. Women who completed the survey were younger and more likely to be white and symptomatic compared with women who did not complete a survey (Table 1). Among those completing the questionnaire, approximately half were completed by women younger than 26 years (Table 2). Twenty-one percent were among women seeking care for a family planning reason. White women constituted approximately 39% of the survey respondents; black women, 23%; Asian women, 19%; Hispanic women, 16%; and women of any other race/ethnicity, 4%. Among respondents of the survey, 591 (72%) women reported at least 1 sexual encounter in the previous 2 weeks. As expected, women reporting sexual activity were more likely to be symptomatic at the visit (59.2% vs. 51.1%, $P = 0.0341$). However, there was no significant difference in STD diagnosis between women reporting sexual activity and those reporting no sexual activity (25.6% vs. 20.4%, $P = 0.1168$). Women reporting no sexual activity in the previous 2 weeks were more likely to feel insecure about sexual relationships (13.9% vs. 9.1%, $P = 0.0471$), state that their health limited their social activities (14.3% vs. 9.0%, $P = 0.0251$), feel isolated from others (14.3% vs. 7.6%, $P = 0.0033$), and feel angry (13.4% vs. 7.3%, $P = 0.0057$) (Table 1).

Among the women who reported sexual activity in the past 2 weeks, few differences were seen in comparison with women diagnosed and not diagnosed as having an STD. Women with a current STD were less likely to be white (27.8% vs. 43.3%, $P < 0.0001$) and were more likely to be symptomatic (69.5% vs. 29.6%, $P < 0.0001$) (Table 3). Interestingly, no statistically significant differences were seen in sexual health measures between women with and without an STD.

Because many STDs are asymptomatic, we explored differences in sexual health between women presenting to the clinic with and without symptoms. Similarly, few differences were seen between symptomatic and asymptomatic patients. Symptomatic women were less likely to be white (34.5% vs. 42.7%, $P = 0.0009$). The only measure of sexual health that was different between asymptomatic and symptomatic women was reports of

TABLE 1. Comparison of Women Seeking Care at San Francisco City Clinic Based on Whether They Responded to Survey, San Francisco, January 25 to June 14, 2010

	Nonrespondents, n (%)	Survey Respondents, n (%)	<i>P</i>
Total respondents	962	822	
Age, y			
<26	386 (40.12)	399 (48.54)	0.0004
≥26	576 (59.88)	423 (51.46)	
Race			
Asian/Pacific Islander	174 (18.22)	154 (18.76)	0.0221
Black	270 (28.18)	193 (23.51)	
Hispanic	181 (18.89)	134 (16.32)	
White	311 (32.46)	317 (38.61)	
Other	19 (1.99)	23 (2.80)	
STD* at visit	231 (24.01)	198 (24.09)	0.9705
Chlamydia	40 (4.87)	63 (6.55)	0.1304
Gonorrhea	11 (1.34)	19 (1.98)	0.2986
Syphilis	2 (0.24)	1 (0.10)	0.4733
Trichomoniasis	19 (2.31)	15 (1.56)	0.2453
Bacterial vaginosis	129 (15.71)	142 (14.76)	0.5769
PID	15 (1.83)	15 (1.56)	0.6612
Symptomatic at visit	303 (31.50)	303 (36.91)	0.0162
San Francisco resident	538 (55.93)	441 (53.71)	0.3499

*STD includes chlamydia, gonorrhea, syphilis, trichomoniasis, bacterial vaginosis, and pelvic inflammatory disease. PID indicates pelvic inflammatory disease.

TABLE 2. Characteristics of Survey Respondents at a Municipal STD Clinic by Reported Sexual Activity in 2 Weeks Before Clinic Visit, San Francisco, January 25 to June 15, 2010

	Total	No Sexual Activity, n (%)	Sexual Activity, n (%)	P
Total respondents	822	231 (28.1)	591 (71.9)	
Age, y				
<26	399 (48.54)	124 (53.7)	275 (46.5)	0.0653
≥26	423 (51.46)	107 (46.3)	316 (53.5)	
Race				
Asian/Pacific Islander	154 (18.76)	38 (16.45)	116 (19.63)	0.1961
Black	193 (23.51)	65 (28.14)	128 (21.66)	
Hispanic	134 (16.32)	34 (14.72)	100 (16.92)	
White	317 (38.61)	85 (36.80)	233 (39.42)	
Other	23 (2.80)	9 (3.90)	14 (2.37)	
STD* at visit	198 (24.09)	47 (20.35)	151 (25.55)	0.1168
Symptomatic at visit	303 (36.91)	68 (29.44)	235 (39.76)	0.0058
San Francisco resident	445 (54.20)	118 (51.08)	350 (59.22)	0.0341
Quality of life				
I feel attractive.	556 (67.64)	152 (65.80)	404 (68.36)	0.4811
I feel insecure about sexual relationships.	86 (10.46)	32 (13.85)	54 (9.14)	0.0471
I worry that people will reject me.	89 (10.83)	31 (13.42)	58 (9.81)	0.1348
I feel hopeful.	486 (59.12)	141 (61.04)	345 (58.38)	0.4851
I feel depressed	89 (10.83)	29 (12.55)	60 (10.15)	0.3192
I feel unclean.	53 (6.45)	19 (8.23)	34 (5.75)	0.1948
I feel happy.	535 (65.09)	149 (64.50)	386 (65.31)	0.8265
My health limits my social activities.	86 (10.46)	33 (14.29)	53 (8.97)	0.0251
I feel anxious.	129 (15.69)	40 (17.32)	89 (15.06)	0.4239
I become tense when someone touches me.	74 (9.00)	24 (10.39)	50 (8.46)	0.3850
I feel successful.	367 (44.65)	104 (45.02)	263 (44.50)	0.8926
I feel isolated from other people.	78 (9.49)	33 (14.29)	45 (7.61)	0.0033
I feel secure.	461 (56.08)	125 (54.11)	336 (56.85)	0.4767
I feel angry.	74 (9.0)	31 (13.42)	43 (7.28)	0.0057
I feel ashamed.	59 (7.18)	25 (10.82)	34 (5.75)	0.0114
I feel confident.	505 (61.44)	144 (62.34)	361 (61.08)	0.7397
I am satisfied with myself.	511 (62.17)	148 (64.07)	363 (61.42)	0.4817
I am satisfied with my personal relationships.	482 (58.64)	128 (55.41)	354 (59.90)	0.2403
I am satisfied with my support with my friends.	568 (69.10)	148 (64.07)	420 (71.07)	0.0510
I enjoy life.	627 (76.28)	176 (76.19)	451 (76.31)	0.9708
I am satisfied with my appearance.	565 (68.73)	155 (67.10)	410 (69.37)	0.5272
I am satisfied with my health.	478 (58.15)	130 (56.28)	348 (58.88)	0.4960

*STD includes chlamydia, gonorrhea, pelvic inflammatory disease, syphilis, bacterial vaginosis, and trichomoniasis.

being self-conscious during sexual activity (16.6% vs. 10.7%, $P = 0.045$) (Table 4).

DISCUSSION

In an effort to better understand possible determinants of sexual health in women attending the municipal STD clinic in San Francisco, we surveyed female patients seeking care. Among women completing our survey, almost 30% of respondents reported no sexual activity in the previous 2 weeks. Women who reported no sexual activity during that period also were more likely to agree with negative statements, such as feeling insecure, isolated, angry, and limited by their health. Few differences were seen between women with and without symptoms and women with and without a diagnosis of an STD with respect to sexual health measures. However, women with a current STD were more likely to be black and have symptoms. Similarly, women with symptoms at the visit were more likely to be black but were also more likely to report a feeling of self-conscious during sexual activity.

These data represent one of the few reports we are aware of that assess sexual health broadly in an STD clinic population and not specifically related to a diagnosis (HPV or HSV) or condition (e.g., polycystic ovarian syndrome, chronic vulval or pelvic pain, or pelvic inflammatory disease). Efforts to improve

sexual health will require more standardized tools that can describe the need for a measure of overall sexual health and data that can track any improvements over time. Although our data are collected from a selected population, namely, women seeking STD and reproductive health services, we believe that more analyses similar to ours may help focus resources and interventions to measure and improve sexual health. Furthermore, few national probability-based samples of the US population are available, and it is unlikely that sexual health measures will be added to the existing surveys (such as National Health and Nutrition Examination Survey or National Survey of Family Growth); therefore, data from selected populations of men and women in the United States may be all that is available.

The continuing challenge in these efforts is that there are sparse data about overall sexual health in populations. In studies of viral STD, persons infected with herpes reported lower quality of life compared with a national sample, particularly among young women.¹⁵ In addition, among persons with a history of anogenital warts in Vancouver, measurements of quality of life were significantly lower than age-matched, population norms.¹⁷ In a descriptive study of persons with HPV, most survey respondents reported experiencing depression, isolation, or shame, as well as impacts on sexual behavior.¹⁶ Chronic pelvic pain resulting from

TABLE 3. Characteristics of Survey Respondents at a Municipal STD Clinic by Diagnosis of STD* at Visit Among Respondents Reporting Sexual Activity in Previous 2 Weeks, San Francisco, January 25 to June 15, 2010

	Current STD, n (%)	No STD, n (%)	P
Total respondents	151 (25.6)	440 (74.5)	
Age			
<26	67 (44.4)	208 (47.3)	0.5373
≥26	84 (55.6)	232 (52.7)	
Race			
Asian/Pacific Islander	25 (16.6)	91 (20.7)	<0.0001
Black	64 (42.4)	64 (14.5)	
Hispanic	19 (12.6)	81 (18.4)	
White	42 (27.8)	191 (43.4)	
Other	1 (0.7)	13 (3.0)	
Symptomatic at visit	105 (69.5)	130 (29.6)	<0.0001
San Francisco resident	88 (58.3)	262 (59.6)	0.7845
FSFI			
I felt sexual desire or interest.	56 (41.18)	202 (48.91)	0.1170
I felt self-conscious during sexual activity.	21 (15.56)	65 (15.74)	0.9595
I felt satisfied with my arousal (excitement) during sexual activity.	79 (59.40)	275 (66.43)	0.1401
Sexual desire or interest.	54 (40.0)	184 (44.02)	0.4122
Self-consciousness during sexual activity or intercourse.	23 (17.04)	49 (11.72)	0.1106
Confidence about becoming sexually aroused during sexual activity.	75 (55.15)	232 (55.64)	0.9207
Satisfaction about your sexual relationship with your partner.	74 (54.01)	256 (61.24)	0.1347
Quality of life			
I feel attractive.	105 (69.54)	299 (67.95)	0.7184
I feel insecure about sexual relationships.	17 (11.26)	37 (8.41)	0.2944
I worry that people will reject me.	14 (9.27)	44 (10.0)	0.7952
I feel hopeful.	84 (55.63)	261 (59.32)	0.4275
I feel depressed.	17 (11.26)	43 (9.77)	0.6020
I feel unclean.	11 (7.28)	23 (5.23)	0.3488
I feel happy.	96 (63.58)	290 (65.91)	0.6033
My health limits my social activities.	15 (9.93)	38 (8.64)	0.6302
I feel anxious.	21 (13.91)	68 (15.45)	0.6465
I become tense when someone touches me.	8 (5.30)	42 (9.55)	0.1056
I feel successful.	67 (44.37)	196 (44.55)	0.9703
I feel isolated from other people.	12 (7.95)	33 (7.50)	0.8582
I feel secure.	86 (56.95)	250 (56.82)	0.9769
I feel angry.	8 (5.30)	35 (7.95)	0.2782
I feel ashamed.	4 (2.65)	30 (6.82)	0.0576
I feel confident.	99 (65.56)	262 (59.55)	0.1907
I am satisfied with myself.	98 (64.90)	265 (60.23)	0.3087
I am satisfied with my personal relationships.	81 (53.64)	273 (62.05)	0.0691
I am satisfied with my support with my friends.	101 (66.89)	319 (72.50)	0.1894
I enjoy life.	118 (78.15)	333 (75.68)	0.5389
I am satisfied with my appearance.	111 (73.51)	299 (67.95)	0.2013
I am satisfied with my health.	84 (55.63)	264 (60.0)	0.3463

*STD includes chlamydia, gonorrhea, pelvic inflammatory disease, syphilis, bacterial vaginosis, and trichomoniasis.

pelvic inflammatory disease has also been associated with lower quality of life scores compared with women without chronic pelvic pain.²³ However, interpretation with other studies should be done cautiously because these may not be entirely comparable.

Approximately 28% of women during the study period reported no sexual activity in the previous 2 weeks. Although these women were less likely to have symptoms, they were also more likely to report that they often felt negative toward sexual health measures. For example, women with no reported sexual activity were more likely to say they felt ashamed, angry, isolated, and insecure. Because these data are cross sectional, it is unclear whether the lack of sexual activity preceded the negative feelings or vice versa.

We found few differences between women who were diagnosed as having an STD at any visit compared with women who were not. This contrasts to results from a study among women testing for chlamydia; in that study, women with a positive test result were more likely to have an increase in anxiety

about sexual aspects of their lives compared with women having a negative result 1 month after the test result (75% increase vs. 26% increase, $P = 0.02$).³⁰ Given that many STDs are asymptomatic in women, the finding of our study is not entirely surprising. However, when stratified by symptom status, similarly few differences were seen in sexual health measures. The lack of differences may be because the survey was administered in an STD clinic population and the small differences in a homogeneous population are not evident. Another explanation may be that, unlike with men, symptoms among women may be less painful and may not affect everyday sexual health as dramatically. It is also possible that some symptoms, namely, vaginal discharge, have an STD and non-STD etiology and a relatively high prevalence, leading to normalization, which may be less likely to affect sexual health enough to impact these measurements.

Given the minimal differences among women based on symptoms and disease, this suggests that there are other factors

TABLE 4. Characteristics of Survey Respondents at a Municipal STD Clinic by Whether Symptomatic or Not at Visit Among Respondents Reporting Sexual Activity in Previous 2 Weeks, San Francisco, January 25 to June 15, 2010

	Symptomatic, n (%)	Asymptomatic, n (%)	P
Total respondents	235 (39.76)	356 (60.24)	
Age			
<26	99 (42.1)	176 (49.4)	0.0812
≥26	136 (57.9)	180 (50.6)	
Race			
Asian/Pacific Islander	42 (17.9)	74 (20.8)	0.0009
Black	72 (30.6)	56 (15.7)	
Hispanic	35 (14.9)	65 (18.3)	
White	81 (34.5)	152 (42.7)	
Other	5 (2.1)	9 (2.5)	
San Francisco resident	145 (61.7)	205 (57.6)	0.3188
FSFI			
I felt sexual desire or interest.	100 (45.87)	158 (47.73)	0.6688
I felt self-conscious during sexual activity.	39 (17.97)	47 (14.20)	0.2350
I felt satisfied with my arousal (excitement) during sexual activity.	134 (61.75)	220 (66.67)	0.2392
Sexual desire or interest.	90 (41.28)	148 (44.18)	0.5017
Self-consciousness during sexual activity or intercourse.	36 (16.59)	36 (10.71)	0.0450
Confidence about becoming sexually aroused during sexual activity.	115 (53.24)	192 (56.97)	0.3888
Satisfaction about your sexual relationship with your partner.	125 (59.60)	205 (60.65)	0.4755
Quality of life			
I feel attractive.	152 (64.68)	252 (70.79)	0.1183
I feel insecure about sexual relationships.	26 (11.06)	28 (8.87)	0.1866
I worry that people will reject me.	24 (10.21)	34 (9.55)	0.7911
I feel hopeful.	137 (58.30)	208 (58.43)	0.9751
I feel depressed.	25 (10.64)	35 (9.83)	0.7506
I feel unclean.	11 (4.68)	23 (6.46)	0.3631
I feel happy.	146 (62.13)	240 (67.42)	0.1862
My health limits my social activities.	26 (11.06)	27 (7.58)	0.1474
I feel anxious.	32 (13.62)	57 (16.01)	0.4258
I become tense when someone touches me.	17 (7.23)	33 (9.27)	0.3841
I feel successful.	108 (45.96)	155 (43.54)	0.5626
I feel isolated from other people.	20 (8.51)	25 (7.02)	0.5044
I feel secure.	132 (56.17)	204 (57.30)	0.7855
I feel angry.	14 (5.96)	29 (8.15)	0.3161
I feel ashamed.	14 (5.96)	20 (5.62)	0.8623
I feel confident.	149 (63.40)	212 (59.55)	0.3470
I am satisfied with myself.	144 (61.28)	219 (61.52)	0.9532
I am satisfied with my personal relationships.	130 (55.32)	224 (62.92)	0.0650
I am satisfied with my support with my friends.	162 (68.94)	258 (72.47)	0.3536
I enjoy life.	178 (75.74)	273 (76.69)	0.7924
I am satisfied with my appearance.	157 (66.81)	253 (71.07)	0.2716
I am satisfied with my health.	131 (55.74)	217 (60.96)	0.2077

that impact the quality of life and sexual health of women seeking care at an STD clinic. Therefore, it is important that programs view sexual health in broader terms than the absence of disease. Creating tools such as indices or sexual health scores developed by psychometricians that can be used to measure sexual health is a necessary first step for programs to understand the sexual health of a community and to evaluate the impact of campaigns and interventions that are implemented to improve sexual health. Our analysis should be seen as an early-stage investigation of the benefit of measuring sexual health systematically in a wide range of settings.

There are several important limitations to this analysis. First, this survey was not validated and was a combination of several questionnaires. However, given the lack of guidance in systematically assessing sexual health, we felt that modifying existing instruments for our clinic population was appropriate. In addition, this was a cross-sectional study, and we are unable to assess causality. Moreover, the STD clinic population is not representative of all women of San Francisco and therefore may

not be generalizable outside the clinic or in other settings. It is not clear how representative the findings of our analysis are to the broader population of women, particularly given that such a high proportion of women were experiencing symptoms at the visit. Also, with the moderate response rate, the survey may not represent all women seeking care at the STD clinic. We were unable to compare the results of the questionnaire to a non-STD clinic group. Women seeking services in a primary care setting may have higher baseline sexual health measures. However, we attempted to address this issue by stratifying by whether the patient was presenting with symptoms or not. An additional limitation is that we were unable to further stratify responses based on specific diagnoses at the visit, given the small number of women with any STD at the visit. However, few differences in sexual health were seen between symptomatic and asymptomatic women.

Landmark studies by Kinsey et al.³¹ and Laumann et al.³² brought the lens of scientific rigor to the subject of sexual health. However, there is still much to be done to advance the

field and our understanding of the population health basis of sexual health. As CDC and its partners reinvigorate the advancement of the sexual health framework, more broad-based assessments of sexual health in a variety of populations will be critical to identifying points of intervention and progress toward success.

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