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Emotional communication in HIV care: An observational study of patients' expressed emotions and clinician response

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Abstract

Emotional support is essential to good communication, yet clinicians often miss opportunities to provide empathy to patients. Our study explores the nature of emotional expressions found among patients new to HIV care, how HIV clinicians respond to these expressions, and predictors of clinician responses. Patient-provider encounters were audio-recorded, transcribed, and coded using the VR-CoDES. We categorized patient emotional expressions by intensity (subtle 'cues' vs. more explicit 'concerns'), timing (initial vs. subsequent), and content (medical vs. non-medical). Emotional communication was present in 65 of 91 encounters. Clinicians were more likely to focus specifically on patient emotion for concerns versus cues (OR 4.55; 95% CI 1.36, 15.20). Clinicians were less likely to provide space when emotional expressions were repeated (OR 0.32; 95% CI 0.14, 0.77), medically-related (OR 0.36; 95% CI 0.17, 0.77), and from African American patients (OR 0.42; 95% CI 0.21, 0.84). Potential areas for quality improvement include raising

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Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional Review Board at Johns Hopkins University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent: Informed consent was obtained from all individual participants in the study.

clinician awareness of subtle emotional expressions, the emotional content of medically-related issues, and racial differences in clinician response.

Keywords

Patient-provider communication; Patient-centeredness; HIV; Quality

1. Introduction

High-quality communication improves patient satisfaction, adherence, and clinical outcomes across various health conditions (1–3). In HIV care, antiretroviral therapy (ART) controls the progression and transmission of HIV, making treatment adherence essential to achieve positive clinical outcomes and public health (4–7). In HIV care settings, patient-centered care and communication facilitates patient engagement in care, intentions to reduce unsafe sexual behavior, increased adherence to ART, and reduced viral loads (8–10).

Among domains of high-quality communication, clinician empathy is the ability to recognize and understand patients' affect and respond in a patient-oriented effort to ease their negative emotions (11), and is particularly important to increase patient satisfaction, treatment adherence, and clinical outcomes in many clinical settings (12–15). Maguire et. al found that patients with cancer disclose more information about their concerns when their providers make empathic statements and ask open-ended questions, while close-ended statements of advice and reassurance had the opposite effect (16). In studies of patients with diabetes, patients reported higher satisfaction with medical visits when their providers responded empathically to emotional talk (17), and those whose providers scored higher on self-rated empathy had better hemoglobin A1c and LDL-C test results (18). Despite evidence on the positive health effects of empathy, clinicians commonly miss opportunities to provide empathic responses to patients' expressions of negative emotions (19–22).

Emotional communication can be directly studied through analysis of observed (audio and/or video-recorded) patient-clinician encounters. The Verona Coding Definitions of Emotional Sequences (VR-CoDES), which categorizes the types of emotional statements made by patients and the types of responses provided by clinicians, is the mostly widely-used method of doing so (23–26). Previous studies that have used this coding system have found that medical visits commonly contain emotional concerns (27–29). For example, the percentage of general practice visits where patients expressed emotional issues ranged from 54% to 92% (27,30–32). Most studies across specialties (e.g. psychiatry, neurology, pediatric cardiology, dentistry, oncology, and primary care) (33–41) concluded that patient emotional issues were expressed more often with indirect cues (a more subtle hint that there is an emotion) rather than explicit concerns (a direct expression of emotion). While many studies have demonstrated that clinicians frequently do *not* provide emotional space for patients to speak about their issues (34,36–38), a few studies have shown the opposite result (33,35).

We sought to observe and describe the prevalence and nature of emotional communication within HIV care using the VR-CoDES. Our study aimed to (1) describe the emotional

expressions of patients new to HIV care (e.g. in terms of intensity, timing, and content); (2) describe clinicians' responses to these emotional expressions; and (3) explore predictors of clinician response. The findings address the dearth of research on empathic communication in HIV care and identifies potential areas for improving clinician communication when caring for patients living with HIV.

2. METHODS

2.1 Study Design, Subjects, and Setting.

We conducted a cross-sectional analysis of patients new to HIV care enrolled in the MaRIPOHSA (Maximizing Respect and Improving Patient Outcomes in HIV and Substance Abuse) study at an urban academic medical center. This observational cohort study was approved by the Institutional Review Board at Johns Hopkins University. Eligible patients had to be (1) at last 18 years of age, (2) English-speaking, (3) diagnosed with HIV, (4) new to HIV care (defined as within 6 months of their first clinic visit), and (5) visiting a clinician enrolled in the study. Patients were eligible to be recorded up to 3 times within 12 months after enrollment. Clinicians were eligible if they (1) were a physician, nurse practitioner (NP), or physician assistant (PA), (2) provided primary care to patients with HIV, and (3) agreed to complete a baseline questionnaire.

In this particular clinical environment, it is worth noting that there are no patient characteristics (such as insurance type) that are considered when making patient-provider assignments. Patients new to the clinic are assigned to primary HIV providers (physicians, NPs, and PAs) according to whichever provider has a new patient slot available. Physicians, NPs, and PAs all practice as primary clinicians and maintain continuity with their own panel of patients.

2.2 Data Collection.

Patients and clinicians gave informed consent prior to data collection. Eligible patients were recruited in the waiting rooms of an HIV specialty clinic and consented privately by trained research assistants under the supervision of the Principal Investigator (MCB) and Senior Research Coordinator (TW). All of the research assistants completed training in human subjects protection required by the institution. Two recorders were placed in the room to audio-record the ambulatory visit between the patient and clinician, which were then transcribed by a professional transcription company. Transcripts were checked for accuracy by research assistants familiar with the clinic and the patient population. Patients enrolled in the study were eligible to have up to 3 visits audio-recorded within the first year of their HIV care.

2.3 Coding of Audio-Recorded Transcripts.

The Verona Coding Definitions of Emotional Sequences (VR-CoDES) is a coding system that has been widely used to identify and explain factors that impact patient expression of negative emotions and clinician responses, and has strong reliability and validity (23–26,42,43).

2.3.1 Patient Emotional Expressions.—The VR-CoDES distinguishes patients' expressions of negative emotions during medical consultations into 2 main categories: cues and concerns. A concern is defined as "a clear and unambiguous expression of an unpleasant current or recent emotion where the emotion is explicitly verbalized." In contrast, a cue is defined as "a verbal or non-verbal hint which suggests an underlying unpleasant emotion but lacks clarity." Cues can be divided even further into subcategories according to the VR-CoDES system (examples are provided in Table I). For example, cue f is defined as "non-verbal clear expressions of negative or unpleasant emotions or hints to hidden emotion." Due to the nature of audio-recordings and transcripts, most nonverbal communication, such as facial expression and tone of voice, was not detected. However, silence, gasps, sighs, laughter, and crying can be heard and are indicated in the transcripts and thus would be categorized as cue f by our research team.

The distinction between a patient cue and concern therefore provides a measure of the *explicitness* of patients' emotional expression. In addition to measuring these types of emotional expressions, the VR-CoDES measures whether the emotional expression was elicited by the clinician (i.e. did the clinician ask the patient a question that elicited the emotion) or offered spontaneously (i.e. initiated by the patient). Because emotional expressions involve an emotional response to a circumstance (44), we expanded the coding to include the *content* of patients' emotional expression broadly in terms of whether it was medically or non-medically related. Medically-related expressions were about emotional responses to patient symptoms, HIV, treatments, other medical illnesses, or tests/procedures. Non-medically-related expressions referred to patient life circumstances. Finally, we measured the *repetition* of the patients' particular emotional expression. We labeled each emotional expression as being either initial expressions (those that were mentioned for the first time by the patient) or subsequent expressions (those that had been previously stated).

2.3.2 Clinician Responses to Patient Emotional Expressions.—The VR-CoDES provides a detailed description and coding manual for 17 possible clinician responses. These 17 responses are grouped together into two primary categories based on whether the response explicitly refers to the patient emotion (or not) and whether the response provides space (or not) for the patient to elaborate on their emotional issues.

Explicit responses that provide space for the patient to talk further include acknowledging the emotion itself (code EPAAc, e.g. "worried?") or the circumstance giving rise to the emotion (code EPCAc, e.g. "the operation?"), asking more about the emotional experience (code EPAEx, e.g. "Why are you so worried?") or circumstance (code EPCEx, e.g. "What operation are you going to have?"), or an expression of empathy that repeats back to the patient the emotion that is heard (code EPAEm, e.g. "I'm sorry. I can understand why that would be really worrisome."). *Non-explicit responses that provide space* for the patient to talk further include providing silence (code NPSi), back-channeling through minimal verbal encouragements such as "okay" (code NPBc), acknowledging using moderate verbal encouragements such as "Are you really?" (code NPAc), actively inviting the patient to talk further (code NPAi, e.g. "Would you like to tell me more?"), and providing empathy that implies that the clinician recognized the emotion but does not specifically repeat it back (code NPIm, e.g. "I understand.").

Explicit responses that reduce space for the patient to talk further include explicitly directing the discussion away from emotional content (code ERSw, e.g. “I think you should talk to a nurse about it.”), actively blocking the patient from elaborating (code ERAb, e.g. “Worrying does not do you any good.”), postponing discussion until later (code ERPp), or giving information or advice to the patient with direct reference to the patient’s emotional expression (code ERIa, e.g. “You do not need to worry; it is a routine operation”). *Non-explicit responses that reduce space* for the patient to elaborate include ignoring the patient (code NRIg), shutting the patient down (code NRSd, e.g. “Oh, don’t be silly!”), and giving information or advice to the patient without direct reference to the patient emotional expression (code NRIa, e.g. “Everything will be fine.”).

2.3.3 Secondary Outcomes/Grouping of Clinician Responses.—Within the 17 categories of clinician behavior in terms of providing space and reducing space, we grouped qualitatively similar clinician responses *a priori* into conceptual categories that were not mutually exclusive. These categories were not empirically defined, but entirely conceptual. Responses that provided space were grouped based on whether or not the clinician:

- expressed explicit or implicit empathy (codes EPAEm or NPIm). It is worth noting here that responses that are characterized as ‘empathy’ by this particular coding system involve a verbal expression that indicates that the clinician has an understanding of the patient’s emotion.
- focused explicitly on the patient’s emotion by acknowledging it, asking about it, or providing explicit empathy (codes EPAAc, EPAEx, or EPAEm).
- explored the emotional concern by asking the patient for more information either generally or explicitly referring to the emotion or circumstance (codes NPAi, EPAEx or EPCEx).
- made a simple acknowledgement either generally or explicitly referring to the emotion or circumstance (codes NPAc, EPAAc, or EPCAc).
- was passive by giving silence, back-channeling, or providing non-explicit acknowledgement (codes NPSi, NPBc or NPAc).

We regrouped clinician responses that reduced space based on whether or not the clinician:

- gave information or advice in response to the patient’s expression of emotional concerns (codes NRIa, ERIa).
- actively tried to avoid the emotional expression (codes NRIg, NRSd, ERSw, ERAb).

2.3.4 Validity of the VR-CoDES.—The VR-CoDES has been found to be a valid coding system that identifies patients’ emotions and their concerns. In a study conducted in Norway, patients with fibromyalgia were asked to watch their video-recorded nursing consultation interviews and to verify the presence of emotional concerns (i.e. cues and concerns) (42). Of the total amount of emotional concerns found, 83% were validated by the patients. When patients were directed by the researcher to confirm cues and concerns, the measurement for sensitivity and specificity were 0.95 and 0.99, respectfully. When patients

had to identify their emotional concerns, the sensitivity was 0.99 and the specificity was 0.70. The classification system for provider responses has been concluded as helpful in objectively describing responses to patient emotional expressions (26). When measuring inter-rater reliability, a study found that multi-rater differences were small (e.g. κ_j (0.52) and ICC (0.53)) (43).

2.4 Covariates.

Patients self-reported their age, gender, and race/ethnicity on questionnaires.

2.5 Statistical Analysis.

We used descriptive statistics to evaluate and describe the study sample in terms of patient demographic characteristics as well as types of patient emotional expressions and clinician responses. We then evaluated whether demographic characteristics (patient age, gender, and race/ethnicity) are associated with patient emotional expressions and clinician responses. Finally, we evaluated characteristics of the emotional expression itself as potential predictors of clinician response: directness in terms of concerns vs. cues, timing in terms of initial vs. repeated emotional expressions, content in terms of medical vs. non-medical, and origin in terms of clinician-elicited vs. patient-initiated.

We used random intercepts multi-level logistic regression to assess associations between independent variables (types of patient utterances and patient demographic characteristics) with types of clinician response (outcome variables). We used a multi-level model in which patient emotional expressions are nested within each visit and visits are nested within clinicians. We used random effects because we expected that emotional concerns within patients and within clinicians were correlated. This statistical method allowed us to appropriately handle biases that could have resulted from patients expressing multiple emotional concerns (clustering of emotional concerns in each visit) and clinicians managing several of these patients (clustering of patients within clinicians).

3. Results

3.1 Sample Characteristics.

Characteristics of the study sample are shown in Table II. There were 19 HIV clinicians and 43 patients in the sample. Therefore, there were 43 patient-clinician dyads. These 43 patients had 91 recorded visits in total. The average age of both clinicians and patients was 45 years old at the time of the recordings. Most clinicians were female (15/19, 79%) and most patients were male (32/43, 74%). Most of the clinicians were white (13/19, 68%) while most of the patients were Black/African American (26/43, 60%). The mean length of the 91 visits was 27.7 (11.8 SD) minutes. The 43 dyads did not demonstrate any significant trends with respect to race or gender concordance. For example, 16% of black patients compared to 13% of white patients were paired with a black clinician, and 10% of male patients vs. 9% of female patients were paired with a male physician.

3.2 Patient Emotional Expressions.

Of the 91 medical consultations, 65 (71%) contained at least one emotional expression (cue or concern). In those 65 visits with emotional communication, there were 250 emotional expressions with a range between 1 and 16 expressions per visit. Most of the emotional expressions were initiated by patients (180/250, 72%) rather than elicited by clinicians (70/250, 28%). Most emotional expressions were mentioned only once (138/250, 55%) whereas the remainder were repeated twice or more.

Table I displays examples and frequencies of each type of patient emotional expression. Overall, most of the emotional expressions fell into the category of cues (184/250, 74%) rather than concerns (66/250, 26%). All types of cues were expressed during the 91 medical visits. The most common cue was D, which is the mentioning of stressful life circumstances and issues (68/250, 27%).

Table III displays the frequencies of topics within the medical and non-medical realms. About half (132/250, 53%) of the emotional expressions were medically-related while the remainder were related to patients' life circumstances. The most common medically-related emotional expressions were about symptoms, having HIV, procedures, and pain. The remaining emotional expressions (118/250, 47%) were non-medically related, which were most often about family, work, money, and general feelings.

3.3 Clinician Responses to Emotional Expressions.

Most of the clinician responses were non-explicit (153/250, 61%) and most provided space (205/250, 82%) for patients. Frequencies of specific clinician responses are shown in Table IV. The most common types of response were non-explicit acknowledgement (18%), non-explicit back-channels (16%), and non-explicit active invitation (14%). The least common response types were providing silence, actively blocking patient emotional concerns, postponing the concern, and switching the topic. Any empathy, either explicit or implicit, was also uncommon (16/250, 6%).

3.4 Patient Demographics and Emotional Communication.

Table V displays the association of patient demographic characteristics with emotional expressions and clinician responses. Patient gender was not associated with any emotional expression characteristics nor with clinician responses. Patient age was significantly associated with how an emotion was expressed: for each increase of 1 year in patient age, there was a 4% decrease in the odds of the patient expressing an emotion explicitly (concern) vs. implicitly (cue) ($p<0.001$).

Patient race was not associated with emotional expression characteristics but was associated with clinician responses. The odds of African American patients being provided space were 58% less than for other races (OR 0.42; 95% CI 0.21, 0.84). Furthermore, the odds of African American patients being given exploratory responses were 52% less (OR 0.48; 95% CI 0.27, 0.84), and the odds of being blocked were 6 times greater than for other races (OR 6.21; 95% CI 1.38, 27.93).

3.5 Patient Emotional Expression Characteristics and Clinician Responses.

Table VI shows the adjusted odds of particular clinician responses based on the characteristics of emotional expressions. There was no significant association between the origin of emotional dialogue (clinician-elicited or patient-initiated) and any of the clinician response outcomes. There was no association between any characteristics of the patient emotional expression and the explicitness of the clinician response.

Clinicians were less likely to provide space for subsequent vs. initial emotional expressions (OR 0.32; 95% CI 0.14, 0.77). They were 48% less likely (OR 0.52; 95% CI 0.30, 0.90) to acknowledge patients and 64% less likely (OR 0.36; 95% CI 0.20, 0.67) to provide neutral/passive statements in response to repeated vs. initial emotional concerns.

When patients' emotional expressions were medically-related, clinicians were less likely to provide space (OR 0.36; 95% CI 0.17, 0.77). Further, the odds that a clinician would make a blocking statement (e.g. ignore, shut down, switch, active block) to a patient was higher when the emotional expression was medically-related (OR 11.95; 95% CI 1.74, 82.30). When patients expressed concerns vs. cues, there was no significant difference in clinicians providing space; however, clinicians were more likely to explicitly focus on patients' emotions when concerns vs. cues were stated (OR 4.55; 95% CI 1.36, 15.20).

4. Discussion

4.1 Discussion.

Our study found a significant number of emotional issues raised by patients new to HIV care regarding their health and well-being. We also found that HIV clinicians responded most often by providing space for patients to elaborate on their emotional issues, but that clinicians were less likely to do so when the emotional issues were medically-related and when they had been stated previously. Finally, and perhaps most importantly, we found that clinicians were less likely to provide space for, and more likely to block, the emotional issues raised by African-American patients compared to those of all other race/ethnicities.

This is the first study that used the VR-CoDES to explore differences in clinician communication by patient race in the United States. We found that African American patients had significantly lower odds of being provided space and exploratory responses, and higher odds of having their emotional concerns blocked. These results corroborate other studies demonstrating racial/ethnic disparities in patient-provider communication. For example, in 2004, a study of 458 patients and 61 physicians during general medical visits showed less patient-centered care and more verbal dominance in visits with African American patients (45). In 2011, Beach et. al. concluded from a study of 354 medical visits that HIV providers were more verbally dominant in visits with African American patients (46). Further, Laws et. al found that HIV providers of African American patients tended to dominate the conversation, ask fewer open-ended questions, and speak more about ART adherence without mentioning methods to improve adherence (47). These examples of different communication styles and treatment towards African American patients may contribute to disparities in healthcare (48–59). We suggest increased awareness of implicit

bias, such as patient race, that may interplay in patient-provider relationships and communication.

Similar to most other studies across specialties (e.g. psychiatry, neurology, pediatric cardiology, dentistry, oncology, and primary care) (33–41), patients in our study within the HIV context expressed their emotional issues more often with subtle cues rather than explicit concerns. On the other hand, while most other studies found that cue B (i.e. implications of concern through emphasis, including metaphors and uncommon wordings) was the most common emotional expression (35–37,60–64), cue D (i.e. mentioning of stressful life circumstances without verbal emphasis) was the most common in our study. The high frequency of this cue may be explained by the many life challenges faced by the population seen in this particular setting.

Our study found that HIV clinicians often provided space for their patients to discuss their emotions, and most often did so with back-channeling, acknowledging, or further questioning about their issues. That our clinicians tended to provide more space to patients than observed in many other studies may be due to several reasons (34,36–38). First, HIV clinicians have experience handling emotional issues because they are accustomed to patients who experience a great deal of stress from their illness and lives. Further, a large percentage of the clinicians in our study are female, and literature in psychiatry, oncology, and general practice have demonstrated that female clinicians provide space more often and receive more emotional concerns than male clinicians (33,39,40).

In our study, HIV clinicians responded explicitly to patients' emotions when direct concerns were expressed, which were less frequent than indirect cues. Since concerns are more easily deciphered as emotional needs, clinicians may be more aware and/or feel more compelled to address the patients' emotions. An international study in Europe found small significance that patients preferred explicit responses more than non-explicit ones, although not enough to be of substantial importance to patient outcomes (64). Still, clinicians may practice communicating more explicitly with patients, especially when addressing their issues.

Our study had a low percentage of statements categorized as empathy, which is also consistent with other studies (31,33). As described earlier, the VR-CoDES codes empathy when the clinician makes a verbal statement to indicate that they understand the patient's emotion. However, it is worth noting as well that clinicians may feel empathy and be empathic in ways that are not coded as 'empathy.' This represents a challenge with all coding systems, resulting from an inability to know what clinicians feel in the moment and what patients themselves perceive as helpful. Thus, even some of the other coded clinician responses may have been intended as and perceived as emotionally comforting to the patient. Further, our reliance on audio-recordings means that we would miss many nonverbal expressions of empathy. Quite importantly, non-verbal behaviors, such as eye contact and social touch, are important for patients when perceiving clinician empathy (65). Further research should explore how non-verbal and verbal communication interplay in response to patient emotional concerns and assess clinical outcomes and patient satisfaction.

HIV clinicians were more likely to reduce space when emotional expressions were medically-related and repeated. Although there are no studies, to our knowledge, that have examined this issue in other settings, these findings have intuitive appeal because clinicians are more likely to feel it is their role to give advice/information to patients resulting from their medical expertise, which is characterized as a reduction of space for patients to express their emotional needs. An area of improvement for communicating with patients is being aware of the emotional component in medically-related concerns and that advice may not be what the patient needs at the moment, although some emotional concerns can be adequately relieved with information.

We found that clinicians were less likely to acknowledge patients and provide neutral/passive statements in response to repeated emotional expressions. This was also not surprising, as clinicians may want to shift the conversation to another topic when no new information is being presented by patients in an effort to control visit length when there is limited time for each patient. However, the repetition of the same cue or concern may represent the fact that the patient has not yet received a clinician response which adequately acknowledged or addressed their emotional concern. Thus, the repetition might be the patient's attempt to get a more helpful response. How this topic-shifting on the part of clinicians affects patients' experiences, or how it impacts the quality and efficiency of the encounter, is not known. Although one study found that visits with missed empathic opportunities lasted longer than visits in which empathy was expressed, which supports the notion that ignoring patient emotion is not efficient, that study used a different methodology than the VR-CoDES (20). We need more studies to address this issue, considering both patient needs and clinical efficiency. Further studies may test or observe the types of clinician responses that are typically satisfactory to patients on an individual level, and provide data about how to create dialogue that betters the patient experience.

4.2 Practice Implications.

Practicing HIV clinicians should be aware that patients often express emotional issues, and that the emotional issues least likely to be explicitly acknowledged by clinicians in conversations with patients are those that are resulting from their medical condition. Clinicians should therefore listen carefully for and address underlying emotional concerns even when discussing medical topics. Clinicians and researchers should also consider the value of providing information in response to a patient's emotional concern, which may be helpful, but often redirects the patient towards less emotional talk and may be a missed opportunity to directly address the underlying emotion. Also, clinicians and researchers should attend to emotional issues that are repeatedly expressed, with the lens that some repetitions may be helpful for the patient to process their experience and some may result from an inadequate prior response from the clinician. Finally, clinicians should be aware of their own potential implicit biases, and researchers should explore the mechanism and develop solutions to the racial disparity in actively blocking patient emotions.

4.3 Study Limitations.

Our study was limited to adult, English-speaking patients who were newly-enrolled in HIV care, and a subset of HIV specialist clinicians in an academic medical center. Since all of our

patients are English-speaking, we may have overestimated the amount of emotional talk since we did not evaluate patients that did not have high English-proficiency. Additionally, we were not able to consider many types of nonverbal cues from patients since we gathered information from audio-recorded transcripts. Further, we did not have some contextual data, such as patient service utilization, that might provide some insight into how experienced patients are at communicating their emotional needs.

Because we had a small number of clinicians with limited gender diversity and even less racial/ethnic diversity, we were not able to examine the impact of racial/ethnic or gender concordance on emotional communication. Further studies should explore these issues explicitly in terms of whether concordance can mediate the racial disparities that we found (66). Because we did not collect any data from patients in terms of how they experienced the clinician responses, we are not able to determine whether particular clinician responses would be associated with patient satisfaction or further downstream outcomes such as adherence to therapy and retention in care. Future studies should explore whether provider responses to emotional concerns impacts patient experience and clinical outcomes, keeping in mind some of the methodological complexities highlighted here, such as the varying number of emotional issues and clinician responses in each visit. One possibility to get this line of research started would be to perform the technique of ‘stimulated recall’ where patients would watch a video or listen to an audio-recorded encounter and speak out loud about how they felt during those moments.

5. CONCLUSIONS

Most newly-enrolled HIV patients express emotional issues during ambulatory encounters, and HIV specialist clinicians often provide space to explore these issues. Potential areas for quality improvement include raising awareness among clinicians of more subtle emotional expressions, the emotional content of some medically-related patient expressions as well as expressions of well-being, and racial differences in clinician response. Further research should confirm and explore reasons for these racial differences, and develop programs to address them in the context of HIV clinical care.

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I.

Patient Emotional Expressions: Definitions and Examples

	Definition	Examples	Prevalence n (%)
Concern	A clear and unambiguous expression of an unpleasant current or recent emotion where the emotion is explicitly verbalized, either with a stated issue of importance for the patient or without a stated issue.	"…the virus, too. With the virus, um, I don't-- I'd like to meet somebody, but I'm afraid to."	66 (26.4%)
Cue	**a.** Words or phrases in which the patient uses vague or unspecified words to describe his/her emotions.	*Doctor: So that they' can do your, your surgery. Um, how has your mood been?* Patient: Uh, not, not that sood.	11 (4.4%)
	b. Verbal hints to hidden concerns (emphasizing, unusual words, unusual description of symptoms, profanities, exclamations, metaphors, ambiguous words, double negatives, expressions of uncertainties and hope).	"But my right rotator cuff is really gone. It's actually-- it's actually gone."	60 (24.0%)
	c. Words or phrases which emphasize (verbally or non-verbally) physiological or cognitive correlates (regarding sleep, appetite, physical energy, excitement or motor slowing down, sexual desire, concentration) of unpleasant emotional states. Physiological correlates may be described by words such as weak, dizzy, tense, restless, or by reports of crying whereas cognitive correlates may be described by words such as poor concentration or poor memory.	"Oh. it's like everything I do. I'm iust exhausted."	14 (5.6%)
	d. Neutral expressions that mention issues of potential emotional importance which stand out from the narrative background and refer to stressful life events and conditions. This applies to nonverbal emphasis of the sentence, abrupt introduction of new content, pauses before or after the expression or to a patient-elicited repetition of a previous neutral expression in subsequent turns.	"I. I need help. He iust has Medicare. We don't have any medical assistance."	68 (27.2%)
	e. A repetition, with very similar words, of an expression said in a previous turn by the patient.	Patient: Uh. he going to rehab now. *Doctor: Oh, good. Okay. So anybody else in the household?* Patient: No. Just me and my cousin---- 'cause he going to a rehab.	11 (4.4%)
	f. Non-verbal clear expressions of negative or unpleasant emotions (crying), or hints to hidden emotions (sighing, silence after clinician question, trembling voice, frowning, etc.).	*Doctor: ---- We need to make sure that you do not have breast cancer. Okay? I don't-- I don't-- you know, I'm not saying that you have it--* Patient: No, it runs in my family. That's why I'm looking at you like that.	2 (0.8%)
	g. A clear and unambiguous expression of a concern, e.g., a previous mental state, a previous worry or fear, referring to a past episode, of more than 4 weeks ago or without a clear time frame.	*Doctor: And yeah. 'Cause that would have been right around the time you started using again?* Patient: "Yeah.--And that kind of--that iust--that, in itself--It was a little upsetting, but-"	18 (7.2%)

II.

Clinician and Patient Characteristics

Clinicians	**(N=19)**
Age, mean (SD)	45.2 (11.1)
Gender, n (%)	
Male	4 (21.1%)
Female	15 (78.9%)
Race, n (%)	
White/Caucasian	13 (68.4%)
Black/African American	1 (5.3%)
Hispanic/Latino	1 (5.3%)
Asian	2 (10.5%)
Other	2 (10.5%)
Type of Training	
Physician	17 (89.5%)
Nurse Practitioner	1 (5.3%)
Physician Assistant	1 (5.3%)
Patients	**(N=43)**
Age, mean (SD)	45.1 (11.4)
Gender, n (%)	
Male	32 (74.4%)
Female	11 (25.6%)
Race, n (%)	
White/Caucasian	11 (25.6%)
Black/African American	26 (60.5%)
Hispanic/Latino	-
Asian	2 (4.7%)
Other	4 (9.3%)

III.

Frequency of Topics in Medical and Non-Medical Emotional Expressions

Topic	**N**	**n (%)**
Medical	132	
Symptom		33 (25.0%)
HIV		20(15.2%)
Medication		18 (13.6%)
Procedure Pain		16(12.1%) 15 (11.4%)
Pain		15 (11.4%)
Other diseases/disorders		13 (9.8%)
Depression		10 (7.6%)
Weight and stress		5 (3.8%)
Drug use		2(1.5%)
Non-medical	118	
Family		36 (30.5%)
Money/insurance		22(18.6%)
Work/school		21 (17.8%)
General feelings/life events		13 (11.0%)
Clinic visits		11 (9.3%)
Relationships/social interactions		11 (9.3%)
Living situation		2(1.7%)
Personal history of trauma		2(1.7%)

IV.

Clinician Responses to Patient Emotional Expressions (N=250)

Overarching Response Types	**Specific Responses Types**		**n (%)**
Non-explicit - Reduces Space	----------		**21 (8.4%)**
	Ignore (code NRIg)		10 (4.0%)
	Information/Advice (code NRIa)		6 (2.4%)
	Shutting down (code NRSd)		5 (2.0%)
Non-explicit - Provides Space	----------		**132 (52.8%)**
	Acknowledgment (code NPAc)		46(18.4%)
	Back Channeling (code NPBc)		40(16.0%)
	Active invitation (code NPAi)		34(13.6%)
	Implicit Empathy (code NPIm)		12 (4.8%)
	Silence (code NPSi)		0 (0.0%)
Explicit - Reduces Space	----------		**24 (9.6%)**
	Information-advice (code ERIa)		19 (7.6%)
	Switching (code ERSw)		4(1.6%)
	Post-poning (code ERPp)		1 (0.4%)
	Active Blocking (ERAb)		0 (0.0%)
Explicit - Provides Space	----------		**73 (29.2%)**
	Content Acknowledgment (code EPCAc)		29(11.6%)
	Content Exploration (code EPCEx)		25 (10.0%)
	Affective Acknowledgement (code EPAAc)		8 (3.2%)
	Affective Exploration (code EPAEx)		7(2.8%)
	Empathy (code EPAEm)		4(1.6%)
Secondary Conceptual Categories			**n (%)**
Provides Space	Neutral/passive (NPSi, NPBc, NPAc)	All non-explicit	86 (34.4%)
	Acknowledgement (NPAc, EPCAc, EPAAc)	Explicit or non-explicit	83 (33.2%)
	Exploring (NPAi, EPCEx, EPAEx)	Explicit or non-explicit	66 (26.4%)
	Explicit response to emotion (EPAAc, EPAEx, EPAEm)	Acknowledges, explores, or expresses explicit empathy directed at emotion	19 (7.6%)
	Any empathy (NPIm, EPAEm)	Explicit or non-explicit	16 (6.4%)
Reduces Space	Gives information/advice (NRIa, ERIa)	Explicit or non-explicit	25 (10.0%)
	Any blocking (NRIg, NRSd, ERSw, ERAb)	Ignores, shuts down, switches topic, or actively blocks	19 (7.6%)

*These secondary conceptual categories are not mutually exclusive so they will not add up to 100%.

V.

Patient Demographic Characteristics Associated with Emotional Expressions and Clinician Responses (N=250)

	Patient Demographics			
Patient emotional expression characteristics	**Age OR (95% CI)***	**Female vs. Male OR (95% CI)***	**African American vs. all other race/ ethnicities OR (95% CI)***	**White vs. all other race/ethnicities OR (95% CI)***
Medical vs. Non-medical	1.01 (0.99, 1.03)	0.90 (0.54, 1.49)	1.16 (0.70, 1.90)	1.17(0.69, 1.96)
Concern vs. Cue	**0.96 (0.94, 0.98)**	0.86 (0.49, 1.53)	1.24 (0.70,2.19)	0.71(0.39, 1.29)
Subsequent vs. Initial	0.98 (0.96, 1.00)	1.59 (0.96,2.64)	0.89 (0.54, 1.47)	1.21(0.72, 2.03)
Doctor vs. Patient-initiated	1.02 (1.00, 1.05)	1.34 (0.77,2.33)	1.03 (0.59, 1.79)	0.98(0.55, 1.75)
Primary clinician response categories				
Explicit vs. non-explicit	1.00 (0.98, 1.02)	1.10 (0.66, 1.84)	1.17 (0.70, 1.96)	0.82 (0.48, 1.40)
Provide vs. reduce space	0.99 (0.97, 1.02)	1.16 (0.60,2.22)	**0.42 (0.21, 0.84)**	1.75 (0.86, 3.59)
Secondary response categories				
Neutral/passive (NPSi, NPBc, NPAc)	1.00 (0.98, 1.02)	0.64 (0.37, 1.09)	0.97 (0.57, 1.63)	1.08 (0.63, 1.86)
Acknowledgement (NPAc, EPCAc, EPAAc)	1.01 (0.99, 1.04)	1.09 (0.64, 1.85)	0.88 (0.52, 1.49)	1.60 (0.93,2.76)
Exploring (NPAi, EPCEx, EPAEx)	1.00 (0.98, 1.03)	1.63 (0.92,2.86)	**0.48 (0.27, 0.84)**	1.29 (0.72,2.29)
Explicit response to emotion (EPAAc, EPAEx, EPAEm)	0.98 (0.95, 1.02)	0.34 (0.11, 1.07)	0.57 (0.22, 1.46)	1.32 (0.51, 3.42)
Any empathy (NPIm, EPAEm)	1.00 (0.96, 1.05)	1.91 (0.64, 5.68)	1.09 (0.37, 3.23)	0.99 (0.32, 3.04)
Gives information/advice (NRIa, ERIa)	1.00 (0.96, 1.03)	0.76 (0.32, 1.78)	1.24 (0.54,2.89)	1.00 (0.42,2.37)
Any blocking (NRIg, NRSd, ERSw, ERAb)	1.02 (0.98, 1.07)	1.08 (0.39, 3.00)	**6.21 (1.38, 27.93)**	0.24 (0.05, 1.07)

*We used random intercepts multi-level logistic regression to assess associations between the independent variable (patient demographic characteristics) with types of clinician response (outcome variables).

VI.

Association of Patient Emotional Expression Characteristics with Clinician Responses

Types of Clinician Response	Characteristic of Patient Emotional expression			
	Medical vs. Non-medical OR (95% CI)*	**Concern vs. Cue OR (95% CI)***	**Subsequent vs. Initial OR (95% CI)***	**Clinician vs. Patient-initiated (OR (95% CI)***
Primary clinician response categories				
Explicit vs. non-explicit	1.24 (0.70, 2.20)	0.93 (0.49, 1.78)	1.23 (0.69, 2.18)	1.02 (0.54, 1.92)
Provide vs. reduce space	**0.36 (0.17, 0.77)**	1.26 (0.55,2.91)	**0.32 (0.14, 0.77)**	1.66 (0.68, 4.02)
Secondary response categories				
Neutral/passive (NPSi, NPBc, NPAc)	0.75 (0.39, 1.44)	1.01 (0.51,2.02)	**0.36 (0.20, 0.67)**	0.70 (0.36, 1.39)
Acknowledgement (NPAc, EPCAc, EPAAc)	0.83 (0.48, 1.45)	0.79 (0.42, 1.50)	**0.52 (0.30, 0.90)**	0.96 (0.52, 1.77)
Exploring (NPAi, EPCEx, EPAEx)	1.02 (0.54, 1.92)	1.29 (0.65,2.58)	1.61 (0.86, 3.02)	1.40 (0.72, 2.73)
Explicit response to emotion (EPAAc, EPAEx, EPAEm)	1.28 (0.38, 4.31)	**4.55 (1.36,15.20)**	0.71 (0.23, 2.21)	1.74 (0.51, 5.94)
Empathy (NPIm, EPAEm)	0.68 (0.23,2.01)	2.20 (0.73,6.60)	2.00 (0.61, 6.57)	1.46 (0.47, 4.52)
Gives information/advice (NRIa, ERIa)	1.87 (0.73, 4.79)	1.10 (0.41,2.96)	1.60 (0.61, 4.20)	0.36 (0.11, 1.21)
Blocking (NRIg, NRSd, ERSw, ERAb)	**11.95 (1.74, 82.30)**	0.41 (0.07,2.43)	1.23 (0.76, 1.99)	0.95(0.24, 3.79)

* We used random intercepts multi-level logistic regression to assess associations between the independent variable (patient emotional expression characteristics) with types of clinician response (outcome variables).