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Attitudes Towards Patients with Sickle Cell Disease in a Multi-Center Sample of Emergency Department Providers

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Abstract

Objective—Patients with sickle cell disease (SCD) often seek care in the emergency department (ED) for pain associated with vaso-occlusive crises (VOC). Research has shown that negative provider attitudes serve as a barrier to care in this patient population. Our aim was to validate a survey that measures attitudes towards patients with SCD among ED providers (nurses and physicians) and to compare differences in attitude scores between provider types.

Methods—We administered the General Perceptions about Sickle Cell Disease Patients Scale, previously validated amongst internal medicine providers, and the Medical Condition Regard Scale (MCRS) to ED nurses and physicians from two emergency departments.

Results—215 surveys were returned (63% response rate, 200 with attitude items completed). Three subscales were identified: Negative attitudes, Uneasiness with care, and Positive attitudes. Cronbach alphas exceeded 0.81 for each subscale. Mean (SD) scores for the Negative, Uneasiness, and Positive subscales and MCRS were 61.5 (20.3), 66.1 (17.1), 41.2 (17.8), and 42.2 (8.9) respectively. Compared to physicians, nurses had significantly higher mean Negative attitude scores and lower Uneasiness scores.

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Authors' Contributions:

CEF, DMC, SR and PT were responsible for data collection. CEF, DMC and PT were responsible for supervision of the conduct of the study. SS did the statistical analysis. CEF, CSE, and PT drafted the manuscript. CEF, CSE, DMC, CH, SR, SS, VT and PT(all authors) critically reviewed the manuscript. All authors read and approved the final manuscript.

Conclusions—A slightly modified version of the General Perceptions about Sickle Cell Disease Patients Scale appears to be a valid measure of ED provider attitudes towards patients with SCD. Amongst ED providers, this scale identified a dimension not observed in research with the original instrument amongst internal medicine providers.

Practice Implications—Provider attitudes influence patient-provider interactions and quality of care. The scale we present here has major clinical implications, particularly for advanced practice nurses, who can use the scale not only to assess providers' attitudes towards patients with SCD, but also determine the effectiveness of tailored interventions to improve those attitudes.

Keywords

Emergency Medicine; Attitudes; Sickle Cell Disease; Emergency Department; Sickle Cell Crisis

1. Introduction

In the United States, sickle cell disease (SCD) affects between 72,000–98,000 people, primarily African Americans.(Hassell, 2010) While SCD causes a number of severe health effects, the most common complications of the disease are the severe episodic bouts of pain known as vaso-occlusive crises (VOC). Treatment for pain is the primary cause of healthcare utilization by SCD patients, and the emergency department (ED) setting has become an important site of care for these patients(Lanzkron, Carroll, & Haywood, 2010; Yusuf, Atrash, Grosse, Parker, & Grant, 2010). Unfortunately, SCD patients and their providers have expressed great frustration in the quality of the pain management that is provided to persons with SCD.

Being predominantly a disease of a minority population, SCD places patients at increased risk for health care disparities (Institute of Medicine, 2003, 2012). The landmark Institute of Medicine (IOM) report titled "*Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*" highlighted that minorities are less likely than whites to have received needed health care services (Institute of Medicine, 2003). According to the report, one major factor contributing to health care disparities emerges from the clinical encounter between the provider and the patient. From the provider's side, this might include bias or prejudice against minorities, greater clinical uncertainty when interacting with minority patients, and beliefs or stereotypes held by the provider about the behavior or health of minority patients. Patients might react to provider biases with mistrust in the provider and/or by refusing treatment. Providers might respond to these patient behaviors by becoming less engaged in the care. As a result of these various provider and patient-level factors, the quality of the communication between the patient and the provider may be compromised (Institute of Medicine, 2003).

The IOM's hypothesized model of racial and ethnic disparities in the quality of care that is delivered seems to explain many of the problems in patient-provider communication observed by SCD patients and their providers. Currently, there are no known objective measures that indicate the presence or severity of sickle cell pain, which introduces a great deal of clinical uncertainty into the relationship between the SCD patient and their provider. In turn, this uncertainty may increase the weight and role of provider biases, stereotypes, or

attitudes about race and/or disease in the clinical encounter. Patients with SCD and their families report that race negatively affects their quality of care as well as the interpersonal relationships with staff during their hospital stay.(Nelson & Hackman, 2013) A systematic review of the literature found a high degree of evidence to suggest that negative provider attitudes serve as a barrier to the delivery of appropriate pain management to SCD patients (Haywood et al., 2009). More positive attitudes have been expressed towards SCD patients who are employed or have higher educational levels, while less positive attitudes have been expressed towards patients with more severe SCD (Ratanawongsa et al., 2009).

These same processes are thought to play a role in the quality of care delivered to SCD patients in the ED setting. Research in the ED indicates that patients with SCD who present with VOC experience significant delays in the time it takes to be evaluated by a provider and time to administration of pain medication compared to the general ED patient, even though patients with SCD were more likely to present with severe pain and be assigned a higher priority triage score (Haywood, Tanabe, Naik, Beach, & Lanzkron, 2013; Tanabe et al., 2007). A direct link between ED provider attitudes towards patients with SCD and those providers' practices in treating patients with SCD has been suggested in a recent national study of 671 emergency physicians. Glassberg et. al. found that ED providers with the highest levels of negative attitudes towards SCD patients were less likely to provide a re-dose of opioids within 30 minutes to SCD patients in the event of inadequate analgesia after an initial dose (J. A. Glassberg et al., 2013).

Because of the potential impact that ED provider attitudes can have on the quality of the care they provide to SCD patients, the ability to accurately and reliably measure ED provider attitudes and be able to monitor changes in those attitudes over time are vital for the development and testing of effective interventions. To improve quality of care for minority patients, the IOM recommends providing education for providers focusing on attitudes, knowledge, and skills to help eliminate disparities (Institute of Medicine, 2003). A video-based educational intervention has been shown to improve internal medicine provider attitudes towards patients with SCD. (Haywood et al., 2011). Provider attitudes in that study were measured using the *General Perceptions about SCD Patients Scale* (Haywood et al., 2011). While the 17 item instrument has been used in prior research examining ED provider attitudes,(J. A. Glassberg et al., 2013; Glassberg, Tanabe, Richardson, & Debaun, 2013) the psychometric properties of the original instrument with 31 items among ED providers, including emergency nurses, are not currently known. The current study aims to: 1) validate the *General Perceptions about SCD Patients Scale* (Haywood et al., 2011) in a sample of ED providers (nurses and physicians), 2) measure baseline attitudes towards patients with SCD among ED providers, and 3) examine the differences in attitudes between ED provider types.

2. Patients and Methods

2.1 Study design, setting, and sample

The *General Perceptions about SCD Patients Scale*(Haywood et al., 2011) and the *Medical Condition Regard Scale* (MCRS)(Christison, Haviland, & Riggs, 2002) were administered to a convenience sample of ED providers as part of a larger prospective study designed to

improve current management of SCD patients. The surveys were administered at two level one trauma EDs in North Carolina, both with residency training programs. Both EDs treated adults and pediatric patients on site. In 2011, site 1 and 2 reported 593 and 499 visits, respectively, for SCD related complaints. All ED providers (registered nurses (RNs), nurse practitioners (NPs), physician assistants (PAs), residents and attending physicians (APs)) were invited to complete the survey. IRB approval was obtained at both study sites and a waiver for informed written consent was obtained for the survey administration.

2.2 Data collection and processing

Anonymous surveys were administered during November and December 2011. ED providers were approached during staff meetings, resident conferences and while working shifts in the ED. Surveys were distributed and collected by the co-investigators, nursing representatives, and research coordinators and assistants. Data was entered into a Redcap database.

2.3 Measures

Potentially confounding data was collected including participants' sex, age, race, ethnicity, provider type, number of years practiced, and a self-reported estimate of the number of SCD patients cared for in a typical week.

2.3.1 The General Perceptions about SCD Patients Scale—The *General Perceptions about SCD Patients Scale* is a 31-item tool (5 or 6 point Likert scale, 1=strongly disagree, 6=strongly agree) that assesses attitudes and beliefs of providers towards patients with SCD (Haywood et al., 2011). The tool was previously validated in a sample of internal medicine providers, with 17 of the original 31 items retained in the final version of the instrument resulting in 4 subscales (Haywood et al., 2011). The *Positive attitudes scale* was composed of 4 items, with higher scores indicating more positive views about patients with SCD (Cronbach's alpha=0.85). The *Negative attitudes scale* was composed of 6 items, with higher scores indicating more negative views about patients with SCD (Cronbach's alpha=0.89). The *Concern raising behaviors scale* was composed of 4 items, with higher scores indicating greater belief that certain SCD behaviors raise provider concern that the patient is inappropriately drug-seeking (Cronbach's alpha=0.82). The *Red flag behaviors scale* was composed of 3 items and is distinct, yet similar to the concern raising behaviors scale, with higher scores indicating concern that the patient is inappropriately drug-seeking (Cronbach's alpha=0.76).

The final 17 item scale was recently used to assess ED provider attitudes (J. Glassberg et al., 2013). After lengthy discussions with the research team who developed the original scale, we determined it would be valuable to test 30/31 of the original items to determine whether the same factor structure or other trends would emerge in the ED provider population. One item was omitted as it was determined to lack relevance in the ED setting.

Four additional questions were developed by the study team to assess frustration in caring for patients with SCD (0–10 Likert scale, 0=not frustrated, 10=most frustrated), and the perception of addiction among adults with SCD compared with the levels of addiction in the

general population and ED patients (0–100%). These questions were used by the principal investigator in other investigations and validated by content experts.

2.3.2. Medical Condition Regard Scale—The *Medical Condition Regard Scale* (MCRS)(Christison et al., 2002) was administered to facilitate construct validation of the *General Perceptions about SCD Patients Scale*. The MCRS is an 11-item non-condition-specific attitude scale that measures biases, emotions, and expectations generated by respondents. Items rate how providers perceive patients with a given medical condition as enjoyable, treatable, and worthy of medical resources. Using this measure, providers have been found to exhibit higher regard for patients with medical conditions when compared to those with somatoform diseases (Christison et al., 2002). Thus the constructs of "medical condition regard" and "attitudes" are similar and adequate to evaluate construct validity of the attitudes scale in our proposed study. Items are scored on a scale of 1–6. A MCRS total score was derived, with a higher score indicating a more positive regard for the patient population under study. The scale has been found to be reliable (coefficient alpha =0.87, test–retest reliability = 0.84) in a sample of 440 medical students.(Christison et al., 2002)

2.4 Data analysis

Non-directional statistical tests were performed and the level of significance was set at 0.05 for each test. The level of significance was not adjusted for multiple testing due to the exploratory nature of the study. All statistical analyses were conducted using SAS 9.3 (Cary, North Carolina). The results from continuous measures are presented as the mean and standard deviation (SD) and the number (n) and percent (%) for categorical data. Providers were subdivided into ED nurses (RNs and NPs) and physicians (residents, PAs and APs). Chi square tests (χ^2) were used to determine if there were site differences in the proportion of (a) nursing vs. physician providers and (b) Non-Hispanic/Latino Whites vs. other racial and/or ethnic groups.

2.4.1 Principal factors analysis—A total of 200 providers completed all 30 items from the *General Perceptions about SCD Patients Scale.* Factor analysis procedures were used to examine the items, their interrelationships, and to identify the number and content of any subscales that could be derived from them. As a preliminary analysis, we first checked the suitability of the items, and any relationships among them, for factor analysis by examining four measures: the correlation matrix determinant value, Bartlett's test of sphericity ($p<0.05$), the Kaiser-Meyer-Olkin test (KMO value >0.60), and individual item measures of sampling adequacy (MSA values >0.60). In total, 7 of the 30 items were dropped from further analyses on the basis of these preliminary results.

The remaining 23 items (N = 200) were subjected to factor analysis. Of these, an additional 5 items were eliminated from further analyses because they were poorly explained by the statistical model (i.e., final communality estimates < 0.40). The final factor structure, therefore, included 18 items that organized into three underlying subscales, which we are calling the Negative attitudes, Uneasiness, and Positive attitudes subscales. All three subscales had at least four items with a factor loading of |0.40| or greater. Subscale scores were generated by summing the values of the items within each subscale with a loading

value of |0.40| or greater and using a linear transformation to convert the scores onto a 0 to 100 scale. We assessed the reliability of the subscales using Cronbach's alpha.

2.4.2 Construct validity—Partial Spearman correlations were conducted to examine the associations among the factor-based subscales. Construct validity was examined using Partial Spearman correlations to determine the relation between the subscales and MCRS total scores. Analysis of covariance (ANCOVA) was then used to test for provider type (nurses vs. physicians) differences on each of the three factor-based subscales and MCRS total scores.

2.4.3 Provider frustrations and perceptions of addiction—Provider differences in perceptions of frustration with care as well as perceptions of addiction in the general population, ED patients and adults with SCD were also examined using ANCOVA. Correlational and ANCOVA analyses included only those providers evaluated in the factor analyses (N=200) and adjusted for years in practice of the provider.

3. Results

3.1 Survey response and participant characteristics

A total of 215 surveys were completed (120 RNs, 50 residents, 33 APs, 3 NPs, 8 PAs, 1 missing provider data), with an overall 63% response rate; 200 surveys had complete data and were included in the analysis. Due to the ordering of the questions on the survey, some providers expressed they were unsure as to whether the questions regarding age and sex referred to the patients with SCD whom they treated or the person who completed the survey. After discussion among the study team, these items were excluded from analysis due to poor validity of responses.

Table 1 reports provider type, years of experience, and race/ethnicity. The sites did not differ significantly in terms of proportion of physicians and nurses (χ^2=1.1, df=1, p=0.2973). Wilcoxon tests indicated that the sites did not differ in years of practice for physicians (z= −1.2, p=0.2303) and nurses (z=1.4, p=0.1586). In terms of provider race/ethnicity, Site 2 had a significantly larger percentage of respondents that were Non-Hispanic/Non-Latino whites (χ^2=6.4, df=1, p=0.0114). Providers at Site 1 and 2 respectively reported taking care of an average of 3.1 (SD=3.2) and 3.6 (SD=3.1) patients per week, with a range of 0 to 20 per week at both sites.

3.2 Factor analyses

The final results of the factor analyses are presented in Table 2. The resulting factor analysis results observed here differed from the results obtained from research with internal medicine providers, both in number and content of the identified subscales. While 17 of the original 31 items were retained in the final version of the instrument in the internal medicine sample (Haywood et al., 2011), 18 items were retained in the current study. The 18 items organized into a 9-item Negative attitudes subscale (with slightly different content than found among internal medicine providers), a 4-item Positive attitudes subscale (same content as internal medicine providers), and a 5-item "Unease with care of sickle cell patients" subscale, which is a brand new subscale compared to that previously reported by internal medicine

providers. The new subscale represents uneasiness with the current state of care provided to patients with SCD in these two ED settings, not provider discomfort when caring for this patient population. The overall means (SD) for the Negative, Uneasiness, and Positive scales were: 61.5 (20.3), 66.1 (71.1), and 41.2 (17.8) respectively. The Cronbach's alpha for each subscale respectively was: 0.93, 0.83 and 0.82. Depending upon the subscale, a higher score indicated greater levels of Negative attitudes, greater Uneasiness with the care of SCD patients, or greater levels of Positive attitudes, respectively. After controlling for the effect of years of provider practice, greater levels of Negative attitudes were associated with less Uneasiness with the care of SCD patients (r_s=−0.31) and less Positive attitudes (r_s=−0.38, both p<0.002).

3.3 Attitudes and Medical Condition Regard Scale

MCRS total scores were inversely associated with negative attitudes (r_s=−0.65, p< 0.002), but positively correlated with positive attitudes (r_s=0.61, p <0.002). Although statistically significant, the association between the MCRS scores and uneasiness with the care of SCD patients score was a weak, positive relationship (r_s=0.23, p< 0.002). The Cronbach's alpha for the MCRS total score was 0.87.

Table 3 presents the means (SD) for the attitudes subscales, MCRS, and years of provider practice for the sample overall, as well as by type of provider. A Wilcoxon Two-Sample Test demonstrated a significant difference in years of practice between nurses and physicians (z=−3.6, p=0.0003). ANCOVAs, adjusting for years of practice, were then conducted on the three attitudinal subscales and MCRS total scores. Compared to physicians (n=88), nurses (n=111) had significantly higher mean Negative attitude scores (F=13.7, df=1,195, p=0.0003) and lower Uneasiness scores (F=19.5, df=1, 195, p<0.0001). No statistically significant between-group difference in the mean Positive attitude scores was found (F=0.8, df=1, 195, p=0.3805). Nurses had significantly lower mean MCRS total scores relative to physicians (F=6.6, df=1, 190, p=0.0108). The covariate effect of years of practice was statistically significant for the Uneasiness subscale (F=5.1, df=1,195, p=0.0248) and MCRS scales (F=11.1, df=1, 190, p=0.0010), with increasing years of experience associated with increased Uneasiness and MCRS total scores. The covariate did not significantly influence Negative (F=2.5, df=1,195, p=0.1179) or Positive (F=2.4, df=1,195, p=0.1260) subscale scores.

3.4 Provider frustration and perceptions of addiction

Table 4 provides the descriptive statistics for the four survey items designed to assess provider frustration and perceptions of addiction. When compared to physicians, the mean ratings of nurses were significantly higher for each of the four items, namely level of frustration in caring for adult SCD patients (F=8.6, df=1,194, p= 0.0037), perception of opioid addiction in the general population (F=59.5, df=1,188, p<0.0001), perception of opioid addiction among adults with SCD (F=52.1, df=1,188, p<0.0001), and perception of ED patients with SCD believed to be addicted to opioids (F=4.9, df=1,189, p=0.0288). Years of practice was a significant covariate for the frustration in caring for adult SCD patients outcome only (F=5.4, df=1,94, p=0.0210), with ratings of frustration decreasing as the years of practice increased.

Partial Spearman correlations controlling for years of practice were used to examine whether the attitudes scores were related to frustration and perception of opioid addiction among adults with SCD. The analyses indicated that: (1) higher Negative attitude scores were associated with higher frustration (r_s=0.54, p<.0001) and a greater perception of opioid addiction (r_s=0.65, p<.0001); (2) higher Uneasiness scores were associated with less perception of opioid addition (r_s=−0.32, p<.0001), but were not related to frustration (r_s= −0.05, p=0.4167); and (3) higher Positive attitude scores were associated with less frustration (r_s=−0.44, p<.0001) and less perception of opioid addition (r_s=−0.31, p<.0001).

4. Discussion

In this study, we report evidence that ED provider attitudes toward SCD patients can be reliably and validly assessed using a modified version of the *General Perceptions about SCD Patients Scale*. We also found that the dimensions underlying ED provider attitudes towards these patients are largely, but not completely, the same as those found using this instrument among internal medicine providers. In particular, the “Unease with care of sickle cell patients” subscale emerged as a distinct subscale for this sample of ED physicians and nurses, which suggests that attitudinal dimensions more relevant to the ED setting must be taken into account when assessing or intervening upon ED provider attitudes towards these patients.

The slightly modified version of the *General Perceptions about SCD Patients Scale* created here demonstrated good psychometric properties and internal consistency. Similar to its use among internal medicine providers, the revised version of the scale separated into Negative and Positive attitudes subscales. Negative ED provider attitudes have already been found to be associated with a lack of adherence to recommended guidelines for treating pain in the ED,(J. A. Glassberg et al., 2013) and a large body of literature has shown that negative attitudes are a major barrier to the delivery of high quality pain management in SCD. (Haywood et al., 2009) The attitudinal scale we present here provides an ED specific tool to measure baseline attitudes as well as changes in ED provider attitudes toward SCD patients. This tool can be used to test the effectiveness of interventions, such as provider education and implementation of pain management protocol, by measuring changes in those attitudes.

It is just as important to assess ED provider levels of positive affiliations with SCD patients as it is to assess their negative attitudes towards these patients. Prior research has shown that greater physician affiliation towards patients in the form of “liking” of the patients is associated with better patient health, increased patient satisfaction, more positive patient affective states, and more positive patient ratings of physician behavior (Hall, Horgan, Stein, & Roter, 2002). This suggests that the cultivation of positive feelings towards patients among providers, and not just the promotion of an absence of negative feelings, could be an important approach in improving the quality of SCD care delivered by physicians and nurses in the ED and other settings.

As with internal medicine samples, negative and positive provider attitudes were found to represent distinct and measurable underlying dimensions of ED provider attitudes towards SCD patients. This suggests that these two provider attitudinal dimensions concerning SCD

patients are important to assess across care settings. A novel attitudinal dimension found in the current study was the finding of a distinct and measurable feeling of unease with the ways in which colleagues of the responding ED providers are observed to treat SCD patients. ED providers with higher levels of regard for SCD patients, and providers with lower levels of negative attitudes towards SCD patients, were found to have higher levels of unease with the treatment of SCD patients sometimes observed from their colleagues. This is an unexpected, yet fascinating finding that is worthy of further exploration. The fact that this attitudinal dimension was observed in this study of ED provider attitudes, but not in prior studies of internal medicine provider attitudes, is consistent with SCD patient anecdotal reports that suggest a higher level of patient frustration with the care provided to them in the ED compared to other settings. It suggests that the behaviors often reported by SCD patients in the ED are not just observed by the patients, but by other ED providers as well, and that these practices are concerning to many ED providers.

Our study found significant between-provider differences in the levels of certain attitudes held towards SCD patients. Compared to physicians, nurses had greater levels of negative attitudes towards SCD patients, expressed greater frustration in caring for SCD patients, provided higher levels of estimates of the prevalence of opioid addiction among the general population and among SCD patients, and reported less unease with the ways in which their colleagues tended to treat SCD patients. In any particular treatment encounter, nurses generally have more frequent and longer interactions with the patient than physicians, so this “greater exposure” may explain higher levels of negative attitudes among nurses relative to physicians. This finding appears to be inconsistent with the findings of Ratanawongsa et. al who found that compared to physicians and physician-assistants, nurses exhibited greater levels of positive attitudes towards SCD patients (Ratanawongsa et al., 2009). Other factors might be contributing to the differences in attitudes between nurses and physicians. Further research should explore these factors and determine whether the difference in attitudes is a consistent finding across setting or is particular to the ED setting.

Just as their greater and more intense level of exposure to SCD patients may explain their more negative attitudes, nurses relative to physicians may exhibit more frustration in caring for these patients, and may develop more extreme views about the level of opioid addiction found among these patients. It is known that a minority of SCD patients constitute what is known as a “high utilizing” subset. These high-utilizing patients have extreme levels of acute care utilization compared to most other SCD patients. Prior research has shown that this high-utilizing minority number of patients exhibits a greater prevalence of substance abuse disorders (Carroll, Haywood, & Lanzkron, 2011). Nevertheless, this high-utilizing subset has also been shown to have more severe disease, on average, compared to other patients with SCD (Carroll, Haywood, Fagan, & Lanzkron, 2009; Carroll et al., 2011). The greater and more intense exposure to SCD patients that nurses tend to have in comparison with physicians also means that they will have greater and more intense contact with this extremely complicated to manage high-utilizing subset, and these experiences may serve to generalize their perceptions about SCD patients as a whole, thus potentially explaining their more extreme views as compared to the views of physicians in our study.

The nurses in this study also expressed lower levels of unease with the care their colleagues provide to SCD patients. Less unease with the ways in which one's nursing colleagues might treat SCD patients suggests that respondents are not identifying problematic care behaviors from their colleagues, they are not appropriately recognizing problematic care as problematic, or that they have a greater tolerance for problematic behavior from their colleagues. While educational interventions to improve the quality of care in the ED must involve both physicians and nurses, this finding of less unease among nurses relative to physicians suggests that interventions especially tailored for SCD care in the nursing context may be required. Advanced practice nurses are ideal to lead these targeted initiatives to improve the care of SCD patients in the ED.

5. Limitations

A number of limitations must be considered when interpreting the results of our research. While two institutions served as study sites, both were in the same geographic region, thus generalizability to other ED settings is unclear. The sample size was at the low end of the acceptable limit generally recommended for the psychometric analyses that we conducted, which may affect the stability of our results. Our sample of non-white ED providers was too small to conduct any meaningful subgroup analyses to examine the psychometric properties of the attitudinal instrument by race/ethnicity. It is possible that a different underlying factor structure of attitudes towards SCD patients may exist for non-white providers and future research should explore this. Finally, actual practice patterns were not measured, so we are unable to determine if attitudes predicted clinical practice in this sample. However, a recent survey of emergency department physicians' attitudes and self-reported practice patterns, towards and among patients with SCD, found physicians with higher negative attitudes scores were less likely to re-administer analgesics within 30 minutes of the initial dose (J. A. Glassberg et al., 2013). Further investigation of the correlation between practice patterns and attitudes would be important, as well as intervention studies to improve attitudes and practice.

6. Conclusions

We examined the psychometric properties of a previously existing tool designed to assess provider attitudes towards patients with SCD among a sample of ED providers (nurses and physicians). Overall, the tool was found to be reliable and valid. It demonstrated a very similar factor structure among the ED providers as it had shown among internal medicine providers. Nevertheless, a novel subscale was identified as relevant to ED providers that was not identified among previous samples of internal medicine providers; that being a sense of unease with the care provided to SCD patients observed from one's professional colleagues. Provider attitudes towards SCD patients, including feelings of frustration in caring for them, and estimates of the prevalence of opioid addiction among them, were found to differ between nurses and physicians.

7. Practice implications

The *General Perceptions about SCD Patients Scale* has now been demonstrated to be reliable and valid for use among internal medicine providers (in its original form) and

among ED providers (in the slightly modified form reported here). With HHS initiatives to improve the quality of SCD care currently receiving priority, quality improvement practices should take advantage of the availability of these instruments in order to address the contribution of provider attitudes towards the provision of inadequate care to SCD patients (U.S. Department of Health and Human Services, 2013). In particular, our findings have an implication for advanced practice nurses, who not only can explore nurses attitudes towards patients with SCD, but can also tailor and lead interventions to improve those attitudes. Specifically, Clinical Nurse Specialists (CNS's) and Nurse Practitioners (NP's) in the ED setting can coordinate the development of and lead multi-disciplinary quality improvement teams focused on improving ED care for persons with SCD. Goals can include implementation of aggressive analgesic protocols to manage VOC pain in the ED. QI teams would be accountable to measure fidelity to the protocols and associated efficiency outcomes. CNS's and NP's can also deliver necessary education about SCD. The attitudes scale can be a valuable tool to assess the effectiveness of these interventions on changing provider attitudes towards patients with SCD, another important patient centered outcome. Further, the novel subscale identified in the current study should be examined closely to determine the extent to which its use could help in the identification of institutional champions, who are uneasy with the care that there colleagues are providing, and who might be excellent change agents to facilitate the development and implementation of interventions to improve the quality of ED care for SCD patients.

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Table 1

Emergency Department Provider Characteristics

Characteristic	Total	Site 1	Site 2
Provider Type (N)	214	117	97
Attending	33 (15.4%)	18 (15.4%)	15 (15.5%)
Resident	50 (23.4%)	21 (18.0%)	29 (29.9%)
Physician Assistant	8 (3.7%)	7 (6.0%)	1 (1.0%)
Nurse Practitioner	3 (1.4%)	1 (0.9%)	2 (2.1%)
Nurse	120 (56.1%)	70 (59.8%)	50 (51.6%)
Years of Practice (N)	213	116	97
Attending	9.5 ± 6.9	9.2 ± 7.3	10.0 ± 6.5
Resident	2.0 ± 0.9	1.9 ± 0.9	2.1 ± 0.9
Physician Assistant	14.0 ±10.5	15.9 ± 9.8	1.0 ± NA
Nurse Practitioner	6.7 ± 4.7	3.0 ± NA	8.5 ± 4.9
Nurse	9.7 ± 9.3	9.2 ± 9.7	10.4 ± 8.8
Race and Ethnicity (N)	186	104	82
Non-Hispanic/Latino White	153 (82.3%)	79 (76.0%)	74 (90.2%)
Non-Hispanic/Latino Black	12 (6.5%)	7 (6.7%)	5 (6.1%)
Hispanic/Latino White	5 (2.7%)	5 (4.8%)	0 (0.0%)
Hispanic/Latino Multiracial	1 (0.6%)	1 (1.0%)	0 (0.0%)
Asian	6 (3.2%)	5 (4.8%)	1 (1.2%)
Native American/Alaska Native	1 (0.6%)	0 (0.0%)	1 (1.2%)
Other	8 (0.4%)	7 (6.7%)	1 (1.2%)
Years of Practice Groups (N)	213	116	97
Physicians	5.8 ± 6.7	6.9 ± 7.7	4.7 ± 5.3
Nurses	9.6 ± 9.2	9.1 ± 9.7	10.3 ± 8.6
Racial and Ethnicity Groups (N)	186	104	82
Non-Hispanic/Latino white	153 (82.3%)	79 (76.0%)	74 (90.2%)
Other racial/ethnic groups	33 (17.7%)	25 (24.0)	8 (9.7%)

Data presented as the mean ± SD for continuous data and n / N (%) for categorical data.

Table 2

Factor Structure for the Provider Attitudes Toward Patients with Sickle Cell Disease (SCD) Scale (N=200)

Survey Question	Negative Attitudes Subscale	Unease with Care of SCD Patients Subscale	Positive Attitudes Subscale
What percentage of patients with SCD:			
Manipulate you or other providers?	**0.89**	−0.07	−0.15
Are drug-seeking when they come to the hospital?	**0.86**	−0.12	−0.13
Over-report (exaggerate) pain?	**0.82**	−0.09	−0.19
Abuse drugs, including alcohol?	**0.79**	−0.13	−0.08
Fail to comply with medical advice?	**0.77**	−0.09	−0.17
Are frustrating to take care of?	**0.71**	−0.04	−0.31
In your opinion, of patients with SCD who exaggerate pain, many do so as a result of:			
Inappropriate or unnecessary drug addiction/drug seeking?	**0.65**	−0.09	−0.25
Indicate your opinion about the degree to which each of the following is a sign that the SCD patient is inappropriately/unnecessarily drug-seeking.			
Patient appears comfortable (e.g. talking on phone or watching TV) while complaining of severe pain?	**0.62**	−0.22	−0.12
Patient requests specific narcotic drug and dose?	**0.61**	−0.17	−0.18
Please indicate your level of agreement with the following statements.			
I am bothered by the way some of my own friends and colleagues treat patients with sickle cell disease.	−0.07	**0.83**	0.02
I am bothered by the way some nurses treat patients with sickle cell disease.	−0.12	**0.83**	0.06
I am bothered by the way some doctors treat patients with sickle cell disease.	0.05	**0.68**	−0.13
In your opinion, of patients with SCD who exaggerate pain, many do so as a result of:			
Inadequate pain management by doctors and nurses.	−0.31	**0.57**	0.11
Previous poor pain management in the healthcare system.	−0.35	**0.53**	0.13
What percentage of patients with SCD:			
Are satisfying to take care of?	−0.10	0.04	**0.80**
Makes me feel glad I went into medicine?	−0.18	−0.03	**0.73**
Are easy to empathize with?	−0.36	0.02	**0.62**
Are the kinds of person that I could see myself friends with?	−0.18	0.06	**0.60**

Table 3

Summary of the Attitudes and Medical Condition Regard Scores

Measure	Total Mean ± SD (N=199)	Nurses Mean ± SD (n=111)	Physicians Mean ± SD (n=88)
Factor-based subscale			
Negative attitudes	61.5 ± 20.3	66.1 ± 22.4	55.4 ± 15.8
Uneasiness	66.1 ± 17.1	61.6 ± 17.0	72.2 ± 15.9
Positive attitudes	41.2 ± 17.8	40.4 ± 18.7	42.7 ± 16.7
MCRS total score	42.2 ± 8.9	40.9 ± 9.2	44.1 ± 8.2
Years of Practice	8.0 ± 8.6	9.8 ± 9.5	5.7 ± 6.7

SD = Standard deviation, MCRS = Medical Condition Regard Scale; Mean attitude subscale and MCRS scores adjusted for years of provider practice.

Table 4

Provider Perceptions of Patients with Sickle Cell Disease

SCD Survey Question	Total Mean ± SD	Nurses Mean ± SD	Physicians Mean ± SD
Rate how frustrated you are with providing care to adult patients with sickle cell disease (scale 0–10)	3.8 ± 2.8	4.3 ± 2.8	3.1 ± 2.8
What percent of the *general population* do you believe are addicted to opioids, seeking opioids for recreation purposes versus pain management?	21.8 ± 24.8	33.1 ± 28.5	8.2 ± 7.3
What percent of *ED patients* do you believe are addicted to opioids?	28.4 ± 24.1	39.4 ± 26.7	16.4 ± 12.6
What percent of *ED sickle cell patients* do you believe are addicted to opioids?	50.9 ± 32.6	55.5 ± 35.1	44.9 ± 28.0

SD = Standard deviation, Ratings adjusted for years of provider practice