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Characterization of (In)Validation in Adolescent Chronic Pain Care: Pain Intensity, Pain Disability, and Psychological Correlates

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Characterization of (In)Validation in Adolescent Chronic Pain Care: Pain Intensity, Pain Disability, and Psychological Correlates

by

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Abstract

Background. Pediatric chronic pain is associated with significant personal, familial, and societal burden. The dearth of effective treatments for chronic pain in youth suggests that there may be neglected socioenvironmental determinants in its etiology and occurrence. (In)validation (i.e., communicating that an individual's feelings, thoughts, or actions are [not] understandable or legitimate) during chronic pain treatment is a patient-identified priority; further, individuals with marginalized identities overwhelmingly report experiences of invalidation in healthcare. Research has yet to systematically describe (in)validation in the clinical encounter. This study aimed to: (1) characterize to what extent physicians (in)validate adolescents with chronic pain (AWCP) and their parents during four distinct sections of a clinical encounter; (2) investigate whether (in)validation differs by AWCP sociodemographic factors; and (3) explore preliminary associations between (in)validation during the clinical encounter and pain correlates at follow-up. **Method.** Video recordings of 39 AWCP and their parents who presented to a tertiary pediatric pain clinic were coded and analyzed. Separate validation and invalidation scores were assigned using a behavioural coding scheme drawn from the psychopathology field. A subset of 24 participants who completed follow-up questionnaires were included in an exploratory analysis of (in)validation and pain correlates. **Results.** Physicians were most invalidating towards AWCP and their parents at the beginning of the clinical encounter (i.e., history taking) and least validating towards AWCP during physical examination. Boys and their parents were more invalidated throughout the encounter than girls and their parents. Parents of white AWCP were significantly more invalidated during history taking than the rest of the encounter, whereas invalidation towards parents of racialized AWCP did not differ significantly across encounter sections. Finally, invalidation was associated with worse AWCP pain disability at follow-up.

Conclusions. There is opportunity for physicians to be mindful of invalidation towards patients from the outset of their pain treatment. (In)validation towards AWCP and their families differed depending on demographic characteristics, indicating the need for equity considerations to improve clinical encounters. Invalidation was associated with worse pain disability over time; thus, there is early justification for developing interventions that minimize physician invalidation of families seeking chronic pain care.

Keywords: Pediatric chronic pain, adolescents, validation, invalidation, clinical encounter

Preface

This thesis is original, unpublished, independent work by the author, Queenie Kwan Wing Li. Ethics approval was granted by the University of Calgary Conjoint Health Research Ethics Board (REB23-1693).

Acknowledgments

I am beyond grateful to be pursing higher education. It is a privilege and a joy to spend my days learning, collaborating, and creating with my peers and mentors. Thank you to my research supervisor, Dr. Melanie Noel, for your encouragement to do meaningful work that is aligned with my values, even when it is challenging. I have grown immeasurably over the past two years, and much is the result of the opportunities you have afforded me. Thank you to my committee members, Dr. Deinera Exner-Cortens and Dr. Serena Orr, and my external examiner, Dr. Karen Benzies, for your time, expertise, and belief in this research. Thank you to Merek Zimmerman for your endless dedication, and Dr. Chad Shenk for your tireless enthusiasm and guidance. Thank you to Dr. Sheri Madigan for enriching my graduate school experience in a way that I could not have anticipated; I am inspired by your tenacity and how much you care.

To my loved ones, thank you for your unwavering support and never questioning any of my offbeat ambitions or decisions. It might be helpful if you started being slightly more critical.

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ANOVA	Analysis of variance
AWCP	Adolescent(s) with chronic pain
CDI	Child Depression Inventory
DBT	Dialectical Behavior Therapy
FDI-C	Functional Disability Inventory–Child Report
ICC	Intraclass correlation
MASC	Multidimensional Anxiety Scale for Children
PWLE	Person/People with lived experience
VIBCS	Validating and Invalidating Behaviors Coding Scale

Characterization of (In)Validation in Adolescent Chronic Pain Care: Pain Intensity, Pain Disability, and Psychological Correlates

Chronic pain is associated with significant personal, familial, and societal burden. Peaking in adolescence, pediatric chronic pain affects 11-44% of youth worldwide (Gobina et al., 2019; Chambers et al., in press), and healthcare expenditures for Canadian adolescents with pain surpass $140 million CAD annually (Hogan et al., 2016). The etiology of adolescent chronic pain is largely unknown and can be independent of apparent injury or organic pathology (Frosch et al., 2022), making the condition difficult to treat. Adolescents with chronic pain (AWCP) additionally experience mental health concerns including anxiety, depression, sleep problems, and lower school satisfaction (Wager et al., 2020). The lack of certain physiological cause for chronic pain, combined with its confirmed mental health comorbidities, has spurred efforts to develop more effective multimodal interventions. Multimodal treatments include an array of psychological therapies (e.g., cognitive behavioral therapy, acceptance and commitment therapy), physical therapy, mindfulness, and coping strategies; however, these interdisciplinary interventions still demonstrate mixed evidence of efficacy and long-term benefits (Elbers et al., 2022; Fisher et al., 2018; Saracoglu et al., 2022; Williams et al., 2020). The dearth of reliable treatment suggests that there may be neglected factors in the foundational understanding of pain experience that relate to the development and maintenance of chronic pain. The current research aimed to contribute to the burgeoning body of literature that utilizes biopsychosocial theory to conceptualize and treat chronic pain (Bevers et al., 2016; Mescouto et al., 2022).

Biopsychosocial Considerations in Chronic Pain

The biopsychosocial model of chronic pain recognizes that while the physiological and cognitive determinants of pain may be located within the individual, the way chronic pain manifests and is treated cannot be separated from an individual's social identity or context (Nicholas, 2022). Gender and racial identity are important elements in the biopsychosocial formulation of chronic pain as they both have roots in biology but are shaped by social forces and systems; both are also established factors associated with disparate pain experience. Gendered differences in chronic pain become apparent during adolescence (Keogh, 2022), with higher pain prevalence and pain intensity observed in girls than boys (Gobina et al., 2019). Additionally, chronic pain disproportionately affects racialized adolescents who historically and presently experience systemic inequities in healthcare (Morais et al., 2022; Tran et al., 2020). A review by Fillingim (2017) demonstrated that, between racialized and white adults with chronic pain, there was more evidence of differential pain impact (i.e., higher disability and worse mental health in racialized patients) than prevalence, suggesting that there are factors influencing pain experience beyond the sensation of pain itself. As such, there is precedent to explore how the interaction of identity and social environment may be affecting pain experience in diverse adolescents.

Pain experience is influenced by signals and cues that an individual with pain receives from their social environment, such as through validating and invalidating communication with close others (Cano & De C. Williams, 2010). The study of communication in pediatric pain has focused primarily on interactions between parents and children (e.g., Pavlova et al., 2020), which is appropriate due to the relationship between parental factors and the functioning of youth with pain. A review and meta-analysis by Beveridge and colleagues (2024) indicated an elevated prevalence of mental health problems in parents of youth with chronic pain, with large portions of parents experiencing anxiety (29%), depression (20%), and general psychological distress (32%). Further, poor mental health in parents predicted the presence of chronic pain, higher pain intensity, and worse pain disability in their children. There is a documented feedback loop between the functional impairment of AWCP and parental responses to their pain (Wakefield et al., 2018) and a unified model of parent-child pain experience indicates that factors beyond direct parental response affect child functioning (Cordts et al., 2019). Thus, more exploration is needed to gain a comprehensive understanding of how parental factors and the pain and treatment experience of AWCP are interconnected.

Interactions between physicians, adolescents, and their families in chronic pain treatment are not widely studied, and less is known about the influence of AWCP gender or racial identity on these clinical encounters. In fact, a recently conceptualized pain injustice model posits that adverse healthcare interactions may be a potential mechanism within multiple interacting domains that produces and perpetuates pain disparities for marginalized individuals (Mathur et al., 2022). Individuals living with chronic pain overwhelmingly report that their pain and related experiences are invalidated by healthcare practitioners through disbelief of their pain, lack of demonstrated compassion or understanding, and stigmatization (Nicola et al., 2021). Despite invalidation being underscored as prevalent and distressing, (in)validating interactions between individuals and their doctors have yet to be empirically examined in the context of youth chronic pain treatment. The established links between parental factors and youth pain functioning, as well as the necessary involvement of parents in their children's chronic pain care, indicate that (in)validating interactions between physicians and parents of AWCP are also important to consider.

Validation and Invalidation in Chronic Pain Care

Validation is the act of communicating to an individual that their feelings, thoughts, and actions are understandable and inherently acceptable; conversely, invalidation communicates that one's experiences are not real and that the individual's existence is unworthy of serious attention and acknowledgement (Linehan, 1993, 1997). Validation as a clinical strategy emerged from Marsha Linehan's foundational work in developing dialectical behavioral therapy (DBT) to address emotion dysregulation and suicidality in people with borderline personality disorder. DBT operates via a diathesis-stress model, emphasizing the interplay between individual and environmental factors as essential in the development and maintenance of psychological disorders (Hoffman et al., 1999). Later adaptations of DBT and validation for use in relational clinical settings (e.g., couples and family therapies) have conceptualized individual and environmental factors as transactional and actively developing the other in a constant state of flux (Fruzzetti & Shenk, 2008). Clinical validation serves to foster patient trust in providers (Linehan, 1997); depending on a patient's previous healthcare experiences, trust building may require varying levels of clinical attention (Neville et al., 2021). Additionally, (in)validation felt by patients may be precarious within or between clinical encounters (Neville et al., submitted manuscript). Thus, (in)validation is a promising window through which to examine dynamic social factors that impact pain experience and further, (in)validation may be a potential target for innovating and improving chronic pain treatment.

Why Individuals are Invalidated in Pain Care

Chronic pain care is often a protracted and uncertain journey; indeed, people typically only access tertiary chronic pain care (i.e., treatment in a specialized hospital setting) after exhausting all acute and preliminary chronic pain interventions. Especially in interactions characterized by challenging pain communication between clinicians and patients, those in long-term pain care may believe that doctors consider them "failures" of treatment (Butow & Sharpe, 2013). Patients with this impression are in a vulnerable position prior to meeting their care team and likely have heightened perceptions for invalidating behaviours by their physicians. In fact, pain patients have reported that they receive lower quality care than patients with other medical concerns, and that physicians give them the "cold shoulder" when they advocate for their own health (Upshur et al., 2010). Compared to extensive training in determining etiology, assigning diagnoses, and providing direction for symptom reduction, physicians receive limited training in communication that is sensitive to and supportive of biopsychosocial factors that impact chronic pain care (Hadjistavropoulos et al., 2011). Particularly for complex concerns such as chronic pain, physicians face persistent challenges in communicating effectively with diverse patients who deserve personalized and collaborative health management (Fernandes et al., 2020; Morgan et al., 2020).

Although validating behaviors can be simple and include direct acts such as maintaining eye contact, making accurate reflections, or asking clarifying questions, more meaningful levels of validation such as contextualizing and normalizing vulnerable patient disclosures are necessarily more involved (Fruzzetti & Shenk, 2008). Invalidation is similarly complex, where conscious or unconscious insensitivity to vulnerable disclosures can undermine patient trust and subsequent buy-in to treatment recommendations. Particularly for clinicians who are intimidated by the intricacies of (in)validation, the act may be viewed as cumbersome and an obstacle to providing immediate relief for patients (Linehan, 1997). Structural healthcare issues including the pressure to complete consultations within short appointments allotments (Irving et al., 2017) and disparate access to care depending on health insurance coverage and processes (Alexander & Schnell, 2024; Hsiang et al., 2019) may hinder the time and attention required to increase validation and reduce invalidation in clinical encounters. Additionally, validation is erroneously perceived by some clinicians as a means of reinforcing pain behaviors via a reliance on interpersonal responses to pain disclosure, which would discourage the active use of validation (Linton, 2015). Taken together, the incomplete understanding of how to validate patients and the restrictive demands of healthcare likely lend to the lack of validation and high prevalence of invalidation reported by individuals seeking pain care.

Potential Outcomes of Clinical (In)Validation

There is a growing literature on the benefits of clinical validation. Trust is built when patients disclose their pain and are met with belief and acceptance, which increases therapeutic alliance and encourages further disclosures to facilitate collaborative care (Linton, 2015; Nicola et al., 2021). Enhancing trust is consistent with the priorities of patient-centered communication, where the ultimate goal is to holistically understand patients in order to establish interventions compatible with their values (King & Hoppe, 2013), thus promoting treatment adherence and favourable health outcomes. The effects of validation in adolescent chronic pain treatment are presently understudied; however, clinical validation has been shown to support youth in mental healthcare. Adolescents report that validating experiences are a major factor in the trajectory of their mental health journey, particularly in promoting help-seeking behaviours (Wasson Simpson et al., 2022). In addition, youth who felt validated by clinicians' nonjudgmental listening and communication of acceptance were more likely to continue and be satisfied with their mental health treatment (Radez et al., 2021).

Conversely, there are documented adverse outcomes related to invalidation in pain experience and across several clinical settings. Invalidation is associated with prolonged stress response, lowered cognitive capacity, and increased anxiety in adults with pain (Butow & Sharpe, 2013; Shenk & Fruzzetti, 2011). Cognitive and emotional concerns, including self-doubt and rumination, have also been linked with invalidation of adolescents by health providers

(Johnson et al., 2020). In contrast to the positive impacts of validation on youth mental health, invalidating interactions are identified barriers to seeking healthcare as they spur feelings of confusion and shame in adolescent patients (Radez et al., 2021; Wasson Simpson et al., 2022). Specific to adolescent chronic pain care, invalidating interactions with healthcare providers throughout treatment have been repeatedly linked with diagnostic uncertainty (i.e., a belief that there is something more serious causing pain that the healthcare provider is missing; Pincus et al., 2018). Over one third of youth in chronic pain treatment and their parents experience diagnostic uncertainty, and this belief can lead to adverse consequences such as unnecessary medical tests and invasive surgeries (Neville et al., 2019).

Identity, Marginalization, and Experiences of Invalidation

Individuals from marginalized groups with chronic pain are consistently devalued, discredited, and even antagonized in healthcare settings (Craig et al., 2020). Racialized and gender marginalized patients report that their pain is dismissed and that they are discriminated against by physicians (Morais et al., 2022; Samulowitz et al., 2018). The accumulation of these adverse invalidating experiences leads to mistrust of healthcare, which manifests in wariness towards treatments and lack of confidence in providers who are symbols of a medical system meant to serve the dominant culture (Ho et al., 2022). Little is known specifically about marginalization and invalidation in youth chronic pain. Most research in this area centers on stigma, as adolescents with chronic pain are singled out, judged, and criticized for possessing an undesirable trait by normative societal standards (Wakefield et al., 2018). Stigma is exacerbated for adolescents from racialized groups, with these youth reporting being stereotyped in healthcare settings, holding medical mistrust, and experiencing negative clinician racial biases (Wakefield et al., 2022, 2024). Concerningly, the communication of stigma or nonsupport via invalidation is deleterious to adolescent health, as evidenced by racialized youth living with pain who report avoiding healthcare due to past invalidating treatment experiences (Jenerette et al., 2014) and concealing their full extent of pain experience to avoid judgement from medical providers (Wakefield et al., 2021). These behaviours point to a pressing need to better understand how racialized adolescents are invalidated in healthcare settings.

In addition to racial identity, gender identity likely also impacts the degree to which adolescents are validated and invalidated in a clinical encounter. A theory-guided review of gender bias in adult chronic pain care (i.e., through a lens of hegemonic masculinity and andronormativity) explored norms of pain experience and treatment in women and men (Samulowitz et al., 2018). Results revealed that women are typically characterized as sensitive and fragile in their pain experience, whereas men with pain are characterized as stoic, autonomous, and competent despite their pain. These norms align with recent research on cultural messaging that adolescents receive through popular media, where girl characters demonstrated higher pain distress and received more help and comfort than boy characters (Cormier et al., under review). Sociocultural narratives about pain undoubtedly inform both the expression of pain by patients and the response to pain by physicians. It is unclear, however, how the interaction between people experiencing pain and their observers may impact gendered invalidation in a clinical context. For example, the tendency for boys to tolerate and deny pain could mean they disclose fewer pain details that are subject to acknowledgment and, therefore, are less invalidated than girls. On the other hand, the expectation that boys should be stoic and agentic regardless of their pain may mean that displays of pain are more likely to be discouraged, resulting in higher levels of invalidation among boys who disclose pain compared to girls. As with racial identity, there exists an opportunity to examine how gender impacts adolescent patient invalidation in chronic pain treatment.

Towards Validating Pain Care: Gaps in Understanding

Fortunately, there is growing evidence that (in)validation is malleable and amenable to intervention. Psychoeducational programs that teach families how to create validating environments have been effective at decreasing feelings of burden and grief that can accompany having mental health problems (Hoffman et al., 2005). In clinical settings, training in empathic communication has demonstrated improved pain outcomes and treatment adherence for adults with fibromyalgia and acute pain conditions (Butow & Sharpe, 2013). Trainees and experienced practitioners alike have improved their validation skills through brief training. For example, medical students receiving two 45-minute training sessions significantly increased their validating behaviors and decreased their invalidating behaviors towards actors roleplaying as chronic pain patients (Linton et al., 2017). A study with physiotherapists treating low back pain also indicated that a 90-minute long workshop was effective at improving clinician validation towards patients during an initial intake interview, with patients expressing increased satisfaction in the clinical encounters post training (Holopainen et al., 2021). In sum, previous studies of clinician (in)validation have focused on adult populations and lacked assessment of pain-related outcomes; additionally, the dynamic, co-created nature of (in)validation (i.e., how [in]validating behaviours may fluctuate) within single a single clinical encounter remains unexamined.

Current Study

(In)validation by healthcare professionals is a patient-identified barrier to chronic pain treatment and should be a top priority in clinical research (Poulin et al., 2018). Specifically, the way that clinician (in)validation unfolds throughout the course of a real life clinical encounter warrants exploration. The current investigation was the first to combine naturalistic observation of physician (in)validating behaviors in a pediatric clinical setting (i.e., the first visit at a tertiary chronic pain clinic) with pain and mental health correlates. This research aimed to: (1) characterize the extent to which physicians (in)validate adolescent patients and their parents over four distinct sections of a clinical encounter (i.e., history taking, physical exam, diagnosis and explanation, treatment planning); (2) investigate whether physician (in)validation of families differs by patient sociodemographic factors (i.e., gender and racial identity); and (3) explore potential associations between (in)validation during clinical interactions and patient pain and mental health correlates.

Methods

Patient Engagement

Pain (in)validation is a patient-identified concern in chronic pain care (Poulin et al., 2018). As such, this project used a patient-partnered approach in its execution. Two people with lived experience (PWLE) of adolescent chronic pain (currently in their early 20s) were engaged in the co-creation of the research questions and considered equal members of the research team throughout the study. The patient partners will be co-authors on publications stemming from the present research and involved in additional knowledge translation efforts (e.g., creation of infographics, media communications) to ensure that information is conveyed in a sensitive, relevant, and meaningful manner to all stakeholders, especially PWLE of chronic pain. The patient partner collaboration was designed according to best practices for engaging PWLE (Vojtila et al., 2021); specifically, the current collaboration emphasized mutually beneficial co-learning (e.g., partners were offered the opportunity to learn the methods utilized), proper support (i.e., cognizance of appropriate time and energy commitments), and fair hourly compensation. Engagement was discussed separately with the patient partners based on individual needs

Participants

Video recordings of 39 adolescent patients aged 10 to 17 (*M* = 13.8) and at least one of their parents who presented to a tertiary pediatric pain clinic in a major city in California, United States were analyzed. Twenty-four participants were girls and 10 were racialized (i.e., Black, Indigenous, Latinx, multiracial). A subset of 24 participants who voluntarily completed follow-up questionnaires 6 to 12 months post-intake were included in a subsequent exploratory analysis of pain and mental health correlates. Demographic information of the participants can be found in Table 1.

Adolescents with chronic primary pain problems and their families were enrolled in the clinic between March 2003 and March 2006. An array of pain diagnoses was represented (56.5% headaches, 34.8% myofascial pain [of any body part excluding headaches], 30.4% abdominal pain, 8.7% complex regional pain syndrome), with 30% of adolescent patients reporting more than one pain type. The current sample was part of a larger multi-method study of 179 youth and parents from this clinical population (Bursch et al., 2006; Clemente, 2009; Clemente et al., 2008, 2012; Meldrum et al., 2008, 2008, 2009; Nutkiewicz, 2019; Tsao et al., 2005; Tsao, Meldrum, Kim, Jacob, et al., 2007; Tsao, Meldrum, Kim, & Zeltzer, 2007). Participants were invited to take part in all components of the study, and families who consented to have their clinic intake appointment videorecorded comprised the current sample. Out of the full sample, 42 videos of initial intake appointments with the families and physicians were available. Three participants were excluded from the current main analysis because of atypical appointment structure (e.g., no diagnosis or treatment planning due to insufficient intake information) or recording issues that resulted in one or more missing sections from the clinical encounter video.

Table 1

Demographic and Functioning Characteristics of Participants

	Total Participants (*n* = 39) *M* (*SD*) or *n*	**Exploratory Analysis (*n* = 24) *M* (*SD*) or *n***
Age (10-17)	13.8 (2.2)	13.5 (2.1)
Gender		
Girl	24	14
Boy	15	10
Racial identity		
White	28	19
Latinx	4	2
Multiracial	3	1
Black	2	0
Indigenous	1	1
Declined	1	1
Pain duration		
Months (average)	53.5	55.1
Months (median)	36	42
Pain intensity (1-10 scale)	-	5.8 (2.8)
Pain disability (FDI-C)	-	18.4 (13.8)
Anxiety (MASC)	-	39.7 (19.6)
Depression (CDI-C)	-	9.7 (6.7)

Measures

Validating and Invalidating Behaviors Coding Scale (VIBCS)

The VIBCS, a flexible tool for assessing (in)validating behaviours across various fields and contexts (Fruzzetti, 2014), was used to assess physician (in)validation towards AWCP and their parents during the intake clinical encounter. The behavioural coding scheme uses an ordinal scale from 1 (low) to 7 (high) to indicate (in)validating behaviours that correspond to increasing degrees of vulnerable disclosures and expression during interpersonal interactions (see Appendix A). Validating behaviors include active listening, accurate reflections, asking clarifying questions, and normalizing the other's experience in context. Examples of invalidating acts include inattention, agreeing with self-invalidation, changing the subject, or implying that the other's feelings are wrong. The VIBCS has demonstrated excellent interrater reliability (i.e., ICC of .86) in measuring (in)validating behaviors of parents towards their adolescent children when discussing conflict in their relationship (Shenk & Fruzzetti, 2014). Concurrent validity of the scale has also been established when used to characterize interactions between couples, where validating behaviors were positively associated with relationship satisfaction ($r = .37$, $p < .001$) and invalidating behaviors were positively associated with inter-partner aggression ($r = .39$, $p < .001$; Lowry et al., 2002). Adaptation of the VIBCS for use in a clinical setting is detailed in the Procedures section below.

Functional Disability Inventory—Child Report (FDI-C)

The self-report FDI-C was used to assess health-related physical and psychosocial activity limitations of participants 6 to 12 months post-intake. The measure is valid for individuals up to 18 years of age and consists of a single score totaled from 15 items that explore difficulty completing everyday activities over the past two weeks (Walker & Greene, 1991). Reponses are indicated on a 5-point Likert scale (i.e., no trouble, a little trouble, some trouble, a lot of trouble, impossible); scores of 0-12 indicate minimal disability, 13-29 indicate moderate disability, and 30-60 indicate severe disability. The FDI-C has shown strong test-retest reliability at two weeks ($r = .74$) and moderate reliability at three months ($r = .48$), has demonstrated excellent internal reliability ($\alpha = .86$ to $.91$; Claar & Walker, 2006), and reliability was likewise strong in the current sample ($\alpha = .92$). Additionally, the FDI-C is shown to be valid across child gender and time, and is significantly associated with child-reported somatic symptoms ($r = .59$, $p < .001$).

Multidimensional Anxiety Scale for Children, Version 1 (MASC)

The MASC total score was used to assess adolescent patient anxiety 6 to 12 months post-intake. The instrument is a 39-item self-report scale that measures anxiety in children and adolescents aged 8 to 18 years old. The MASC consists of 39 self-report items that capture four clusters of youth anxiety symptoms: physical symptoms (tense/restless and somatic/autonomic), social anxiety (humiliation/rejection and public performance fears), harm avoidance (anxious coping and perfectionism), and separation anxiety (March et al., 1997). Items are rated on a 4-point Likert scale (i.e., never true about me, rarely true about me, sometimes true about me, often true about me). Scores of 65 and above are in the clinical range, indicating likelihood of significant anxiety symptoms that may warrant further evaluation or intervention. Using multi-sample confirmatory factor analysis, the MASC has demonstrated equivalence across gender (NNFI = .913, CFI = .916, IFI = .917) and age (NNFI = .976, CFI = .977, IFI = .978; March et al., 1997). Moderate to strong internal reliability has been found across the MASC subscales and its total score ($\alpha > 0.73$; $\alpha = .93$ in the current sample)), and convergent validity holds across all subscales (Baldwin & Dadds, 2007). The MASC total score has been shown to significantly predict the presence of primary anxiety disorders in youth (AUC = 0.70; Villabø et al., 2012).

Child Depression Inventory, Version 1 (CDI)

Total scores from the CDI, a self-report instrument measuring severity of depression symptomology in children and adolescents (Kovacs, 1992), at 6 to 12 months post-intake were used in the present analysis. The measure consists of 27 questions relating to overt symptoms of depression including sadness, anhedonia, suicide ideation, low mood, and sleep. Each item presents three choices of severity scored from 0 to 2, with higher scores corresponding to greater severity (13 of the 27 items are reverse-coded); a score of 19 or higher is considered clinically significant. The CDI has demonstrated high internal reliability (α = .89 [Helsel & Matson, 1984]; α = .85 in the current sample), and good test-retest reliability after one week ($r = .87$, $p < .001$) and six weeks ($r = .59$, $p < .006$; Saylor et al., 1984). Internal reliability and test-retest reliability are consistent across age and gender. High concurrent validity exists between the CDI and other depressive symptomology measures including the Reynolds Child Depression Scale (RCDS; $r = .71$) and Reynolds Adolescent Depression Scale (RADS; $r = .83$; Masip et al., 2010).

Procedure

Ethics & Participation

All study procedures were approved by the institutional health research ethics board at the University of California, Los Angeles (UCLA). Secondary data analysis was approved by the University of Calgary Conjoint Health Research Ethics Board (REB23-1693). Participants were recruited via patient interaction at a tertiary pain clinic, where parents were asked upon booking their adolescent's intake visit whether they were willing to be contacted about a research study. Permitting families were contacted with study details; those who gave verbal consent subsequently met with the research team. Written informed consent and assent were obtained during the family's first meeting with researchers prior to the AWCP and their parents meeting with the study's tertiary pain physicians. Initial clinic visits between AWCP, their parents, and physicians were video recorded. Participants completed follow-up questionnaires detailing patient pain experiences, mental health, and overall daily functioning 6 to 12 months post-intake appointment.

Coding of Clinician (In)validating Behaviours

VIBCS Training. The research team comprising the author (Master's level graduate student in Clinical Psychology), a research assistant (RA; holder of an Honours Psychology undergraduate degree), and their research supervisor (Professor of Clinical Psychology) were trained to use the VIBCS prior to commencement of coding the study sample. Training included attending a VIBCS workshop given in September 2022 by Dr. Chad Shenk, a leading researcher of (in)validation in pediatric trauma and mental health with extensive experience using the coding scale. The workshop offered detailed instruction of the VIBCS including its theoretical underpinnings and coding structure, descriptions of each level of (in)validating behaviours, and guidelines to promote interrater reliability. Training continued with five weekly meetings of approximately one to two hour duration to practice consensus coding, during which the coding team discussed each discrepant code until agreement on a final code was reached. Coding was conducted on three specified videos from the same set of intake appointments analyzed in the study; training videos were not included in the final analysis. Based on a 95% confidence interval of the ICC estimate, a value of .75 (i.e., good reliability) was set as the lower bound of acceptability (Koo & Li, 2016). Once raters reached this minimum reliability criterion, they were permitted to code videos for the study dataset.

Adaptation of the VIBCS. The present study was novel in its application of the VIBCS in a clinical setting. As such, specific attention was paid to potential adaptations required to ensure relevance and rigor of the scale in the current context. The VIBCS has primarily been used to code interactions between individuals with established history including romantic partnerships (Ekholm et al., 2023; Lowry et al., 2002) and parent-child dyads (Shenk & Fruzzetti, 2014). As physicians and families meeting in clinical encounters do not have pre-existing relationships, the coding team was careful to account for the initial rapport building process; coders aimed to be generous when capturing validating behaviours and conservative when assessing invalidating behaviours. Additionally, coding of (in)validation using the VIBCS typically adheres to the pattern of disclosure and immediate response, which does not necessarily align with the inherent structure of a medical intake appointment (i.e., initial gathering of information to inform later explanation). Particularly when coding the diagnosis and treatment planning sections of each clinical encounter, the research team was mindful to note instances of physicians acknowledging disclosures from earlier in the appointment. Consistent evaluations of high interrater reliability suggested that the adaptations made by the research team were relevant and appropriate. No other major deviations from the existing coding scheme were required.

Coding Procedure. The graduate student author and undergraduate RA coded the entirety of the video set. Thirty-four of the encounters were rated by a single coder (i.e., 17 each) and eight randomly selected encounters (20% of the sample) were rated by both. The length of the encounters ranged from 50 to 127 minutes ($M = 90.3$). Coders viewed the clinic visits and applied VIBCS codes to the videos independently. According to the VIBCS, validation and invalidation are considered separate but related constructs; therefore, (in)validation scores were assigned and analyzed separately. Using the descriptors of (in)validation categories from the VIBCS manual as a guide, coders assigned each section of the intake appointment (i.e., history taking, physical exam, diagnosis, treatment planning) a single validation and single invalidation code ranging from 1 to 7 to capture the overall (in)validating nature of the encounter portion. In most of the intake visits, parents were asked to leave the clinic room during the physical exam; thus, codes for physician (in)validation towards parents were only assigned to three sections of the clinical encounter (i.e., history taking, diagnosis, treatment planning). In cases where more than one physician was present in the encounter, they were considered a treatment unit and assigned collective (in)validation scores regardless of individual behaviours. The research team met regularly to prevent coding drift by discussing scores for the eight recordings that were double-coded. In the case that consensus could not be reached for discrepant codes, the supervising professor made the final decision.

Reliability of the VIBCS for Physician-Family Interactions. (In)validation scores from the eight double-coded videos were used to assess interrater reliability. Reliability was obtained using a two-way random effects ICC model based on absolute agreement between coders (McGraw & Wong, 1996). A portion of the clinical interactions were coded by only one rater, so a single measure ICC was chosen as a conservative estimate of reliability. ICC of .88 was obtained, indicating excellent interrater reliability.

Data Analytic Strategy

Data were analyzed using IBM SPSS Statistics for Mac (Version 28.0.1.0). Due to the fact that analyses were performed on a convenience sample, no a priori sample size calculation occurred for any of the statistical tests; however, analyses were adapted from a previously published examination of the association between parental (in)validation and adolescent mental and emotional functioning that utilized a comparable sample size (i.e., 29 parent-child dyads; Shenk & Fruzzetti, 2014) to that of the present study. First, descriptive statistics were conducted to characterize the extent to which physicians (in)validated AWCP and their parents in each part of the clinical encounter. Next, two-way mixed analysis of variance (ANOVA) was used to further explore clinician (in)validating behaviours throughout the intake appointment; that is, the analyses determined whether physician (in)validation across sections of the clinical encounter differed by AWCP gender and racial identity. Post-hoc paired t-tests were used to probe significant main effects, and Bonferroni corrections were applied to correct for multiple comparisons. Finally, an exploratory analysis using bivariate correlations was conducted to investigate associations between clinician (in)validating behaviours and AWCP pain functioning and mental health correlates 6 to 12 months post-intake appointment. In order to maximize data availability and analytic power, pairwise deletion was used to handle missing data in analyses involving MASC (2 cases) and CDI (3 cases) scores.

Results

Seven physicians (five women, two men) appeared in the 39 analyzed clinical encounters. Three of the seven physicians (all women) attended the majority (n = 29) of the intake appointments in some combination; 20 of these intakes were attended by a single physician, seven intakes included two physicians, and two intakes included all three physicians. The four remaining physicians attended appointments only on their own; one physician (woman) attended seven intakes and three physicians (two men, one woman) attended one intake each. Based on observing the video recordings, the physicians were all white-presenting.

Aim 1: To What Extent Do Physicians (In)Validate AWCP and Their Parents During Clinical Encounters?

Descriptive statistics were conducted to determine the extent of physician (in)validation (possible scores from 1 to 7) towards AWCP and their parents across four sections of the clinical encounter (Table 2). Throughout the entire encounter, physician validation scores towards AWCP and their parents ranged from 2 to 6 and invalidation scores ranged from 1 to 6, where higher scores indicated more validation and invalidation, respectively. Validation scores were higher than invalidation scores for every section of the clinical encounter.

Validation

Physician (in)validating behaviours towards families is visualized in Figure 1. Physician validation of AWCP was highest during history taking (M = 3.85, SD = 0.99), which was also the section with the largest range of validation scores (i.e., 2-6). Lowest validation towards AWCP was observed during the physical exam (*M* = 3.03, *SD* = 0.63), which also saw the smallest range of physician validating behaviours (i.e., 2-4). Physician validation towards parents of patients was higher during both the diagnosis and treatment planning sections (*M* = 3.67, *SD* = 0.87 and *M* = 3.67, *SD* = 0.89, respectively) than during history taking (*M* = 3.42, *SD* = 0.76). The range of validation scores towards parents was consistent throughout the encounter, with a slightly higher range during diagnosis (i.e., 2-6) than the other two sections (i.e., 2-5).

Table 2

Descriptives for (In)Validation Scores Across the Clinical Encounter

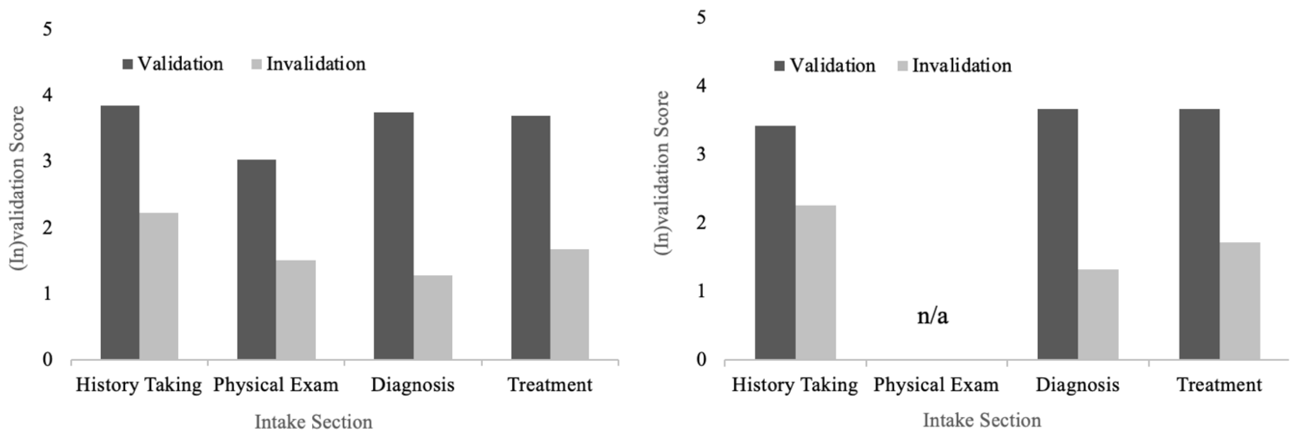
		Intake Section	Mean (SD)	Median	Mode	Range (1-7)
Physician to AWCP	Validation	History	3.85 (0.99)	4	3	2-6
		Physical	3.03 (0.63)	3	3	2-4
		Diagnosis	3.74 (0.88)	4	3	2-6
		Treatment	3.69 (0.89)	4	4	2-5
	Invalidation	History	2.23 (0.96)	2	2	1-5
		Physical	1.51 (0.97)	1	1	1-6
		Diagnosis	1.28 (0.56)	1	1	1-3
		Treatment	1.67 (0.96)	1	1	1-5
Physician to Parent	Validation	History	3.42 (0.76)	3	3	2-5
		Diagnosis	3.67 (0.87)	3	3	2-6
		Treatment	3.67 (0.89)	4	4	2-5
	Invalidation	History	2.26 (0.80)	2	2	1-5
		Diagnosis	1.33 (0.62)	1	1	1-3
		Treatment	1.72 (1.00)	1	1	1-6

Invalidation

Physician invalidation towards AWCP was highest in the history taking section (*M* = 2.23, *SD* = 0.96) and lowest during diagnosis (*M* = 1.28, *SD* = 0.56). The range of invalidation scores was largest during the physical exam (i.e., 1-6) and smallest during diagnosis (i.e., 1-3). Aligned with invalidation of the AWCP, invalidation of parents was highest during history taking (*M* = 2.26, *SD* = 0.80) and lowest during diagnosis (*M* = 1.33, *SD* = 0.62). For parents, the largest range of invalidation scores was observed during treatment planning (i.e., 1-6) and the smallest range appeared during diagnosis (i.e., 1-3).

Figure 1

Physician (In)Validation Towards Families Across the Intake Clinical Encounter



Note. Left graph = AWCP; right graph = parents.

Aim 2: Does Physician (In)Validation Differ by AWCP Sociodemographic Factors?

Two-way mixed ANOVAs were conducted to determine whether physician (in)validation across sections of the clinical encounter differed by AWCP gender and racial identity. To test for the effects of gender and section of the encounter, ANOVAs were run separately for AWCP (i.e., 2 [between subjects: girl, boy] x 4 [within subjects: history taking, physical exam, diagnosis, treatment planning]) and their parents (i.e., 2 [between subjects: girl, boy] x 3 [within subjects: history taking, diagnosis, treatment planning]). The same was done to test for effects of racial identity and encounter section. It should be noted that gender and racial identity were analyzed as a binary (i.e., girl, boy; white, racialized) due to availability of data and diversity in the sample. Models were examined for outliers using boxplots and normality was assessed using the Shapiro-Wilk's test ($p > .05$). Levene's test ($p > .05$) and Mauchly's test ($p > .05$) were, respectively, used to assess homogeneity of variances and sphericity. Violations of model assumptions are noted below. For instances where sphericity was not achieved, the Greenhouse-Geisser correction was applied and reported. Results from ANOVA examining (in)validation across gender can be found in Table 3; those from ANOVA examining (in)validation across racial identity can be found in Table 4.

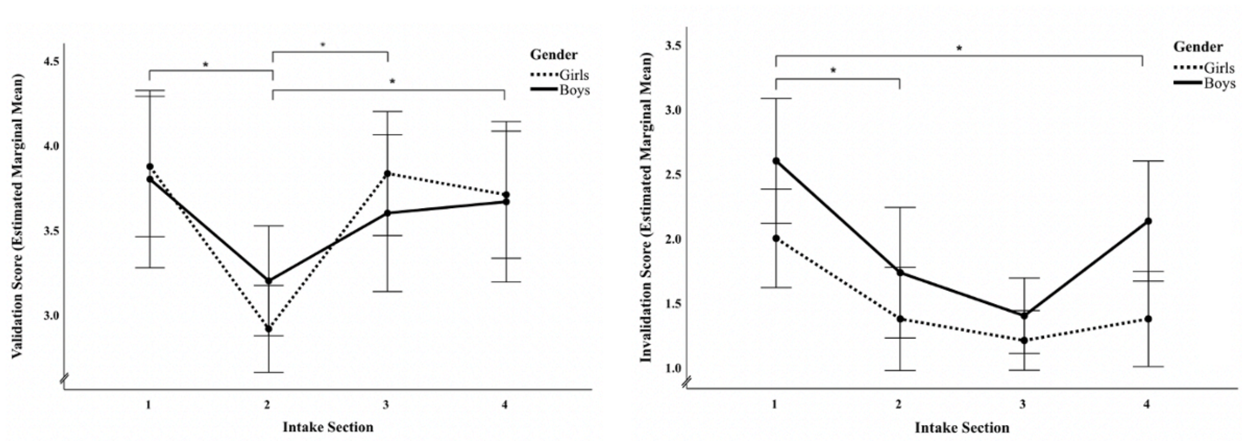
AWCP Gender and Physician (In)validation

Gender and Physician Validation. There was no statistically significant interaction between gender and section of the clinical encounter on physician validating behaviours towards the AWCP, $F(3, 111) = 0.95$, $p = .421$, $\eta p^2 = .025$ (Figure 2). The main effect of intake section showed a significant difference in mean validation scores at different points of the clinical encounter, $F(3, 111) = 9.89$, $p < .001$, $\eta p^2 = .211$. Specifically, pairwise comparisons indicated that physicians were validating AWCP at a lower level during the physical exam than during history taking ($M = .78$, 95% CI [.30, 1.26], $p < .001$), diagnosis ($M = .66$, 95% CI [.28, 1.04], $p < .001$), and treatment planning ($M = .63$, 95% CI [.21, 1.05], $p = .001$). Girls were validated at a higher level than boys in all sections of the encounter outside the physical exam, though this pattern did not reach statistical significance, $F(1, 37) = 0.01$, $p = .937$, $\eta p^2 < .001$.

Similarly for parents of AWCP, there was no significant interaction between patient gender and intake section on physician validation, $F(2, 72) = 0.20$, $p = .823$, $\eta p^2 = .005$ (Figure 3). Analysis of main effects indicated that parents were least validated during history taking and that parents of boys were more validated than those of girls; however, neither the effect of intake section ($F[2, 72] = 1.97$, $p = .147$, $\eta p^2 = .052$) or AWCP gender ($F[1, 36] = 0.16$, $p = .694$, $\eta p^2 = .004$) were statistically significant.

Figure 2

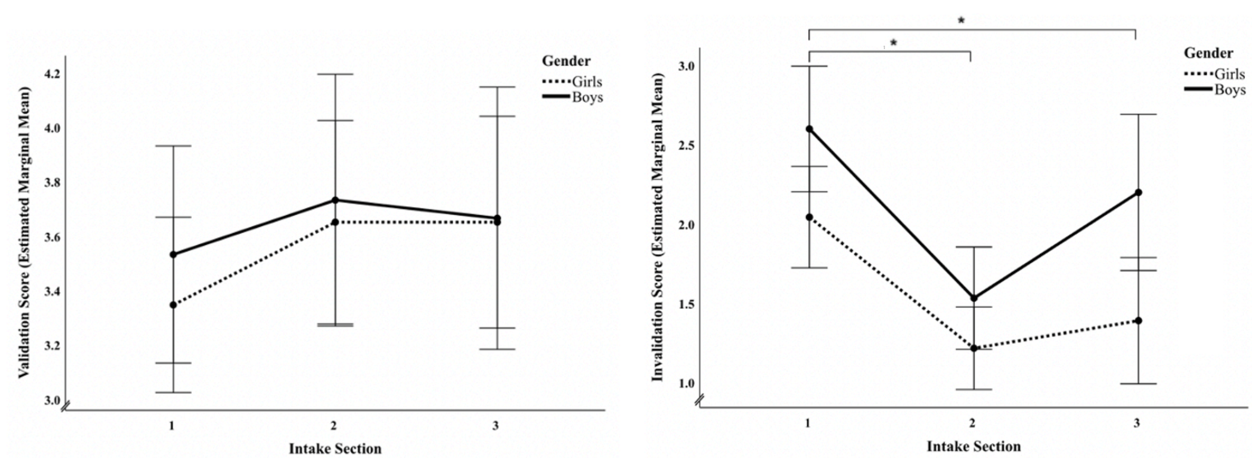
Validation and Invalidation of AWCP: Gender x Intake Section



Note. Intake section 1 = history taking; 2 = physical exam; 3 = diagnosis; 4 = treatment planning. Left graph = validation; right graph = invalidation; * denotes $p < .007$.

Figure 3

Validation and Invalidation of Parents: AWCP Gender x Intake Section



Note. Intake section 1 = history taking; 2 = diagnosis; 3 = treatment planning. Left graph = validation; right graph = invalidation; * denotes $p < .013$.

Gender and Physician Invalidation. There was no significant interaction between gender and sections of the intake appointment on physician invalidation towards AWCP (sphericity violated, $\chi^2[5] = 11.80$, $p = .038$), $F(2.53, 93.52) = 0.93$, $p = .418$, $\eta p^2 = .024$ (Figure 2). A significant main effect of intake section indicated that physician invalidating behaviours towards AWCP differed between sections of the clinical encounter, $F(2.53, 93.52) = 10.51$, $p < .001$, $\eta p^2 = .221$. Specifically, physicians demonstrated higher levels of invalidation during history taking than they did during the physical exam ($M = -.75$, 95% CI [-1.32, -.18], $p = .005$), diagnosis ($M = -.10$, 95% CI [-1.51, -.48], $p = .029$), and treatment planning ($M = -.55$, 95% CI [-1.05, -.04], $p < .001$). Additionally, there was a significant main effect of gender on physician invalidating behaviours, $F(1, 37) = 8.37$, $p = .006$, $\eta p^2 = .184$. Pairwise comparisons indicated that physicians invalidated boy AWCP at a higher level than girl AWCP, $M = -.48$, 95% CI [-.81, -.14], $p = .006$.

Similar to the AWCP, no interaction between patient gender and intake section was observed for physician invalidation towards parents, $F(2, 72) = 1.22$, $p = .302$, $\eta p^2 = .033$ (Figure 3). The main effect of intake section showed a statistically significant difference in mean invalidation towards parents at different points of the appointment, $F(2, 72) = 18.05$, $p < .001$, $\eta p^2 = .334$. In particular, invalidation by clinicians was higher during history taking than during both treatment planning ($M = -.95$, 95% CI [-1.35, -.54], $p < .001$) and diagnosis ($M = -.53$, 95% CI [-.91, -.14], $p = .005$). Physicians were also more invalidating towards parents during treatment planning than during diagnosis, $M = -.42$, 95% CI [-.82, -.02], $p = .035$. Finally, a significant main effect of patient gender on invalidation towards parents, $F(1, 36) = 9.19$, $p = .004$, $\eta p^2 = .203$, was followed by pairwise comparisons revealing that parents of boys were more invalidated than parents of girls, $M = -.56$, 95% CI [-.94, -.19], $p = .004$.

Table 3

Two-Way Mixed ANOVA Results Examining (In)Validation Across Gender

Outcome	ANOVA Statistics		
	Section	Gender	Section x Gender
AWCP Validation	$F_{(3,111)} = 9.89^{**}$, $\eta p^2 = .211$	$F_{(1,37)} = 0.01$, $\eta p^2 < .001$	$F_{(3,111)} = 0.95$, $\eta p^2 = .025$
AWCP Invalidation	$F_{(2.53,93.52)} = 10.51^{**}$, $\eta p^2 = .221$	$F_{(1,37)} = 8.37^{**}$, $\eta p^2 = .184$	$F_{(2.53,93.52)} = 0.93$, $\eta p^2 = .024$
Parent Validation	$F_{(2,72)} = 1.97$, $\eta p^2 = .052$	$F_{(1,36)} = 0.16$, $\eta p^2 = .004$	$F_{(2,72)} = 0.20$, $\eta p^2 = .005$
Parent Invalidation	$F_{(2,72)} = 18.05^{*}$, $\eta p^2 = .334$	$F_{(1,36)} = 9.19^{*}$, $\eta p^2 = .203$	$F_{(2,72)} = 1.22$, $\eta p^2 = .033$

Note. Greenhouse-Geisser corrected statistics were reported if assumption of homogeneity of variances was violated (i.e., Mauchly's Test of Sphericity $p < .05$).
* denotes $p < .013$; ** denotes $p < .007$.

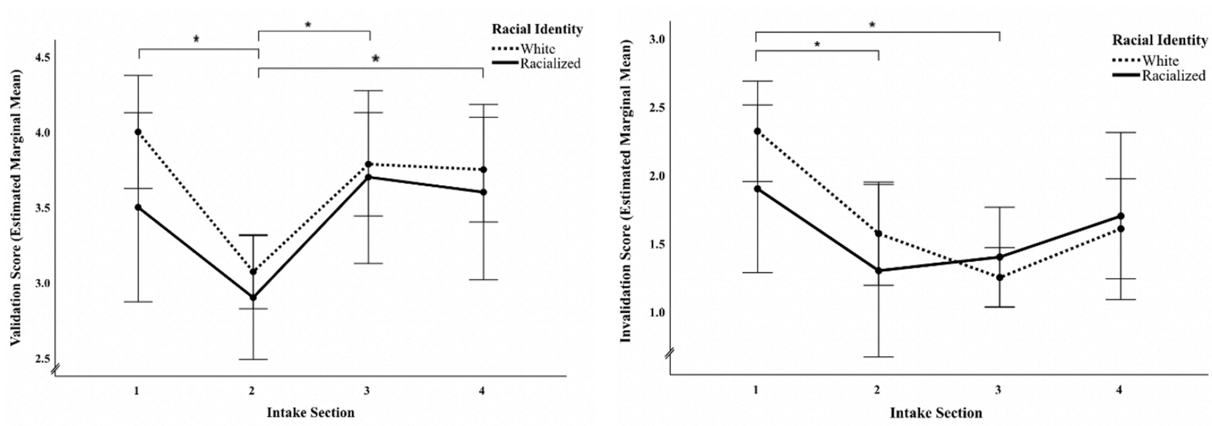
AWCP Racial Identity and Physician (In)validation

Racial Identity and Physician Validation. There was no statistically significant interaction between racial identity and section of the clinical encounter on physician validation towards AWCP, $F(3, 108) = 0.54$, $p = .657$, $\eta p^2 = .015$ (Figure 4). The main effect of intake section on clinician validating behaviours aligns with the gender analysis reported above. In addition, no main effect of racial identity on physician validation was observed for the AWCP, $F(1, 36) = 0.96$, $p = .333$, $\eta p^2 = .026$, though physicians were more validating towards white than racialized AWCP throughout the intake visit.

No interaction between patient racial identity and section of the intake appointment was observed for physician validation towards parents of AWCP, $F(2, 70) = 0.33$, $p = .719$, $\eta p^2 = .009$ (Figure 5). Akin to results for AWCP, the main effect of intake section on physician validation of parents aligns with the previous gender analysis. In addition, physicians were more validating towards parents of white versus racialized AWCP during all parts of the clinical intake, but the main effect of racial identity on clinician validation did not reach significance, $F(1, 35) = 2.07$, $p = .160$, $\eta p^2 = .056$.

Figure 4

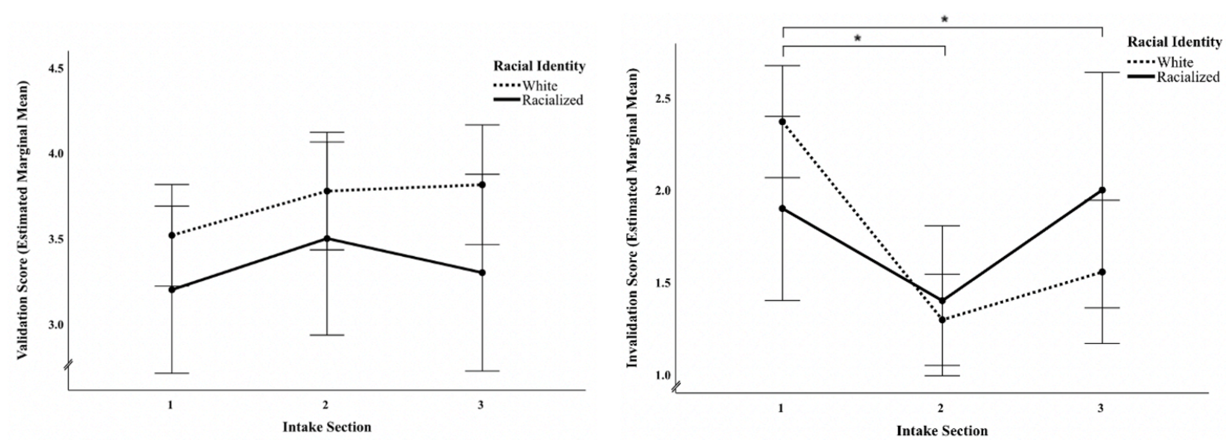
Validation and Invalidation of AWCP: Racial Identity x Intake Section



Note. Intake section 1 = history taking; 2 = physical exam; 3 = diagnosis; 4 = treatment planning.
Left graph = validation; right graph = invalidation; * denotes $p < .007$.

Figure 5

Validation and Invalidation of Parents: AWCP Racial Identity x Intake Section



Note. Intake section 1 = history taking; 2 = diagnosis; 3 = treatment planning.
Left graph = validation; right graph = invalidation.
* denotes simple main effect for parents of white patients only (invalidation); $p < .013$.

Racial Identity and Clinician Invalidation. There was no significant interaction between racial identity and section of the intake appointment on physician invalidation of AWCP (sphericity violated, $\chi^2[5] = 12.84$, $p = .025$), $F(2.47, 88.98) = 0.90$, $p = .430$, $\eta p^2 = .024$ (Figure 4). The main effect of intake section showed a significant difference in invalidation towards patients at different points of the clinical encounter, $F(2.47, 88.98) = 5.61$, $p < .001$, $\eta p^2 = .135$. Specifically, physicians demonstrated higher levels of invalidation during history taking than during the physical exam ($M = -.68$, 95% CI [-1.33, -.02], $p = .038$) and diagnosis sections ($M = -.79$, 95% CI [-1.36, -.22], $p = .003$). No main effect of racial identity on physician invalidation towards AWCP was observed, $F(1, 36) = 0.31$, $p = .583$, $\eta p^2 = .008$. Though the result was not statistically significant, invalidation of white AWCP by physicians showed a notably more variable trajectory (e.g., there was a larger difference between levels of invalidation between history taking and treatment planning) than invalidation of racialized AWCP.

In terms of physician invalidation towards parents of AWCP, there was a statistically significant interaction between racial identity and section of the clinical encounter, $F(2, 70) = 3.60$, $p = .032$, $\eta p^2 = .093$ (Figure 5). As such, main effects will not be reported. An analysis of simple main effects of racial identity yielded no significant effect on physician invalidating behaviours towards parents at any point of the clinical encounter; in other words, there was no difference in the mean level of physician invalidation towards parents of white versus racialized AWCP within each section of the intake appointment. In contrast, simple main effects of intake section revealed differences in physician invalidating behaviours towards parents of white versus racialized AWCP throughout the clinical encounter. Parents of white AWCP were more invalidated during history taking than both during diagnosis ($M = -1.07$, 95% CI [-1.55, -.60], $p < .001$) and treatment planning ($M = -.82$, 95% CI [-1.20, -.43], $p < .001$). No significant differences in levels of physician invalidation throughout the intake appointment were observed for parents of racialized AWCP.

Table 4

Two-Way Mixed ANOVA Results Examining (In)Validation Across Racial Identity

Outcome	ANOVA Statistics		
	Section	Racial Identity	Section x Racial Identity
AWCP Validation	$F_{(3,108)} = 8.54^{**}$, $\eta p^2 = .192$	$F_{(1,36)} = 0.96$, $\eta p^2 = .026$	$F_{(3,108)} = 0.54$, $\eta p^2 = .015$
AWCP Invalidation	$F_{(2.47,88.98)} = 5.61^{**}$, $\eta p^2 = .135$	$F_{(1,36)} = 0.31$, $\eta p^2 = .008$	$F_{(2.47,88.98)} = 0.90$, $\eta p^2 = .024$
Parent Validation	$F_{(2,70)} = 1.71$, $\eta p^2 = .046$	$F_{(1,35)} = 2.07$, $\eta p^2 = .056$	$F_{(2,70)} = 0.33$, $\eta p^2 = .009$
Parent Invalidation	$F_{(2,70)} = 10.47^{**}$, $\eta p^2 = .230$	$F_{(1,35)} = 0.01$, $\eta p^2 < .001$	$F_{(2,70)} = 3.60^{*}$, $\eta p^2 = .093$

Note. Greenhouse-Geisser corrected statistics were reported if assumption of homogeneity of variances was violated (i.e., Mauchly's Test of Sphericity $p < .05$).
* denotes $p < .05$; ** denotes $p < .013$; *** denotes $p < .007$

Aim 3: Exploratory Associations Between (In)Validation and AWCP Pain and Mental Health Correlates

Bivariate correlations were conducted in an exploratory assessment of the relationship between physician (in)validation during the different sections of the intake appointment and AWCP pain intensity, pain disability, and mental health 6 to 12 months after the encounter (Table 4). A significant positive association was observed between physician invalidation towards parents during history taking and pain disability experienced by AWCP 6 to 12 months later, $r(21) = .44$, $p = .035$. No significant relationships were observed between physician (in)validation towards families and AWCP anxiety or depression outcomes.

In correlation analyses, statistically insignificant associations of moderate to high effect size (i.e., $r > .30$) indicate that variables may be significantly related were tests run using adequate sample size. Due to the present study's small sample size for Aim 3, the tests were likely underpowered; thus, the following are tentative reports of relationships between physician (in)validating behaviours and AWCP correlates based on moderate effect size, which can be used to inform powering samples for future empirical research. The current analysis revealed that during diagnosis, higher levels of validation towards AWCP may be associated with lower symptoms of depression at 6 to 12 months after the clinical encounter, $r(20) = -.31$, $p = .161$. Additionally, higher physician invalidation towards parents during diagnosis may be related to higher AWCP pain intensity, $r(22) = .35$, $p = .093$. During treatment planning, physician validation towards AWCP showed a potential negative association with future pain intensity, $r(22) = -.38$, $p = .071$. Further, invalidating behaviours towards AWCP during this section revealed that higher levels of invalidation may be positively associated with higher pain intensity ($r[22] = .38$, $p = .065$) and pain disability ($r[21] = .34$, $p = .108$) at follow-up. There were no notable associations between physician (in)validation towards AWCP or their parents and symptoms of anxiety.

Table 5

Pearson Correlations for (In)Validation and Pain & Psychological Correlates

			Pain[a]	FDI-C[b]	MASC[c]	CDI[d]
Physician to AWCP	Validation	History	-.21	-.24	.10	.11
		Physical	.13	.29	-.21	-.04
		Diagnosis	-.23	.07	.19	.31
		Treatment	-.38	-.06	-.03	-.01
	Invalidation	History	-.02	.24	.01	.21
		Physical	.08	.21	.06	-.11
		Diagnosis	.11	.29	.28	.08
		Treatment	**.38**	**.34**	.21	.08

Physician to Parent	Validation	History	-.18	-.18	.01	.03
		Diagnosis	-.16	.13	-.03	.22
		Treatment	-.19	-.02	-.02	-.01
	Invalidation	History	.23	**.39**	.13	.21
		Diagnosis	**.35**	**.44***	.15	-.07
		Treatment	.27	.18	-.01	-.16

[a]Child pain intensity; child report, higher score = higher intensity
[b]Functional disability index; child report, higher score = higher disability
[c]Multidimensional anxiety scale for children; child report, higher score = higher anxiety
[d]Children's depression inventory; higher score = higher depression
*Statistically significant at p < .05 level (2-tailed)
Bolded = moderate or higher effect size (i.e., *r* >= |.30|)

Discussion

This study was the first to apply the Validating and Invalidating Behaviours Coding Scale (VIBCS), a behavioural coding scheme, to empirically characterize how physicians (in)validate AWCP and their families during treatment for pediatric chronic pain care. Results indicated that the VIBCS can be used to reliably capture (in)validating interactions in a clinical context between physicians, AWCP, and their parents. The current study demonstrated that during the first clinical encounter in a tertiary-level pain clinic, physicians (in)validated AWCP and their parents to varying degrees across distinct sections of the visit. AWCP were most validated during history taking and parents were most validated during diagnosis; both AWCP and their parents were most invalidated during history taking (i.e., the earliest section of the encounter). Some differences in (in)validation across the clinical encounter were related to gender and racial identity. Namely, boys with chronic pain and their parents were more invalidated throughout the intake appointment than girls and their parents. In terms of racial identity, physicians invalidated parents of the adolescents to the same degree; however, parents of white adolescents were more variably invalidated (i.e., higher during history taking than the rest of the encounter), whereas invalidation towards parents of racialized adolescents did not differ significantly across the encounter. Lastly, exploratory analyses indicated that invalidation towards parents during history taking was significantly associated with worse adolescent pain disability at follow-up.

Aim 1: To What Extent Do Physicians (In)Validate AWCP and Their Parents During Clinical Encounters?

Physicians both validated and invalidated AWCP the most during history taking. (In)validation at higher levels requires responses to vulnerable disclosures (Linehan, 1997), and this is consistent with the finding that physicians were most (in)validating towards adolescents in the section during which information about past and present pain experience is being elicited. It is essential for physicians during history taking to encourage that individuals openly share their pain journeys in order to gain a holistic understanding of their health and treatment needs, however, the act of doing so can also present opportunities to invalidate individuals. This is particularly fraught during the onset of rapport building, as first impressions that patients form of their physicians are typically maintained throughout the entire clinical relationship (Dang et al., 2017). In contrast to history taking, the lowest level of validation towards AWCP was seen during the physical exam; as this is a relatively rote section of the clinical encounter that focuses primarily on inspection of bodily areas affected by current symptoms, it follows that there may be fewer targets for more meaningful validation. However, this also was often the only encounter portion when the adolescents were able to speak alone with physicians. Parents are necessarily involved in pediatric chronic pain care, which makes the physical exam a potentially promising intake section in which to bolster intentional validation towards youth in treatment. Patients are more likely to share accurately when they are validated (Holopainen et al., 2021); particularly for adolescents, the physical exam may be an opportune time to discuss and be supported in topics that the youth deem too personal to share with their parents.

Aligned with their adolescent children, parents were also most invalidated during history taking, which presents similar challenges in terms of hindering positive relationship building between families and care teams. Parent emotions shape their children's pain experience through mechanisms such as protective behaviours and displaying high levels of distress (Palermo et al., 2014), so parents' adverse responses to being invalidated may further compound the effects of their children's own negative experiences with healthcare. Next to history taking, parents were most invalidated during the treatment planning section. It is understandable that physicians aspire to be assertive when making recommendations for care; however, caution should be exercised as to prevent inadvertent invalidation of parental concerns. Parents of youth with chronic pain report that being invalidated by healthcare providers augments feelings of uncertainty around their children's care, which can lead to a persistent search for alternative diagnoses and interventions (Neville et al., 2019). Therefore, invalidating behaviours during treatment planning may negate the validity or weight of physician recommendations. Notably, parents were most validated and also least invalidated by physicians in the diagnosis section of the encounter. There are typically fewer new disclosures by families during diagnosis provision as physicians take this time to summarize and integrate information they have already received from patients and their parents. Higher levels of validation, therefore, suggest that physicians are referencing previous disclosures in an accepting and supportive manner. This practice can be highlighted and promoted to physicians as effective for creating more validating care environments.

Overall, results indicated that validation scores were higher than invalidation scores throughout the clinical encounter. Further, physician (in)validating behaviours in the present study were comparable to those of physical therapists after completing a brief training program for validating communication (Holopainen et al., 2021). It is unsurprising that physicians who practice in a specialized tertiary pain clinic possess a sensitivity to patient pain experience. Although these physicians displayed a strong foundation of validating behaviours in the low-moderate range of scores, there exists an opportunity to consistently validate AWCP and their parents at a higher, more impactful level. Indeed, meaningful validation is a complex task that requires intentionality and attention to the subtleties of patient disclosures; for example, the common refrain of "your pain is real" is explicitly validating but often not enough to leave AWCP feeling understood and legitimized (Neville 2019). Additionally, patient reports of clinical experiences emphasize *in*validation, which suggests that the effects of even relatively lower levels of invalidation versus validation are salient, affecting, and long lasting. Results of the current study indicating the variable nature of invalidation compared to validation suggest that clinical encounters may benefit from enhancing physician awareness of possible invalidating behaviours that may be unconscious yet damaging to relationship building with their patients.

Aim 2: Does Physician (In)Validation Differ by AWCP Sociodemographic Factors?

The current study revealed differences in patterns of physician (in)validation with respect to AWCP gender. Boys and their parents were significantly more invalidated during the clinical encounter than girls and their parents. Additionally, trends in the analysis also revealed that boys were validated less than girls in every section of the intake visit, though this latter finding did not reach statistical significance and should be explored in larger samples. Taken together, however, results suggest that vulnerable disclosures made by boys with chronic pain and their parents were not acknowledged as acceptable (i.e., validated at low levels) and further, were treated as illegitimate (i.e., invalidated at higher levels). Across a wide range of cultures, adolescent boys continue to accept and perpetuate the narrative of physical strength and toughness as displays of masculinity that are important to follow (Kågesten et al., 2016). These ideals are inherited from family members, media, and institutions that influence youth, which includes healthcare settings for adolescent boys seeking medical care. In the field of adult chronic pain, a cultural norm of the stoic male who tolerates and conceals his pain is held and expressed by men living with pain, researchers, and health providers alike (Samulowitz et al., 2018). Physician (in)validating behaviours towards boys and their families as demonstrated in the present study likely play a role in maintaining the socialization of boys to deny and ignore their pain. Pain adjustment is worse for those who do not disclose their pain experiences (Cano & Williams, 2010), so it is exceedingly detrimental for AWCP to be potentially discouraged in disclosing and vulnerably sharing about their pain.

Results from the present study did not find differences in physician (in)validation towards AWCP as a function of racial identity; however, differences were observed in the trajectory of invalidating behaviours towards parents of adolescents with differing racial identity. It should be noted that the observation of the videos suggested that parents and AWCP shared racial identity; thus, adolescent racial identity is a reasonable proxy for parents. Parents of white adolescents were significantly more invalidated during history taking than the rest of the appointment, while no differences across intake sections were observed for parents of racialized adolescents. Present analyses that did not account for racial identity indicated that physician invalidation towards parents was highest during history taking. These results not holding for parents of racialized AWCP may suggest that they were less forthcoming during history taking and offered fewer disclosures for invalidation, which is aligned with research indicating mistrust of the healthcare system by racialized individuals (Ho et al., 2022). Specifically, parents of racialized AWCP may have been hesitant to share the full extent of their child and family's pain experiences due to past discrimination in healthcare. A review of studies examining disparities in chronic pain treatment revealed that racialized individuals are systematically prescribed fewer pain relief medications and are more closely monitored than white individuals for misuse (Morales 2020). Parents of racialized AWCP perhaps wanted to avoid negative stereotyping or appearing as though their children's pain stemmed primarily from mental health issues, and in doing so, provided physicians with less complete information. Impactful validation is precisely concerned with what and how vulnerable disclosures are acknowledged (Linehan, 1997). As such, effective validation requires familiarity with prescribed social norms in combination with specific cultural norms of individual patients in order to accurately observe, interpret, and respond to disclosures. Conversely, biases or lack of knowledge about a patient's social identity leaves opportunity to invalidate them. It is essential that health providers have an understanding of how clinical interactions are impacted by the past experience and cultural narratives of individuals they are treating.

Aim 3: Exploratory Associations Between (In)Validation and Pain & Mental Health Correlates

Results from the current study provide preliminary evidence that physician (in)validation may play a role in patient pain and mental health outcomes. Higher invalidation towards parents at the onset of the encounter during history taking was significantly associated with worse pain disability amongst AWCP 6 to 12 months post-intake, although conclusions should be considered with caution as the present study did not control for participant characteristics at intake. Psychosocial factors including social response to pain and individual attitudes towards pain care are shown to impact chronic pain outcomes and functioning in adults (Ferreira-Valente et al., 2014; Jensen et al., 2011). Families of people in chronic pain treatment are likewise affected by the personal and social burdens of those in pain (Ojeda et al., 2014). In adolescent pain care, parents relate to their children more intensely compared to parents of those without pain, in part due to the extensive nature of treatment (Palermo 2014). Taken together, physician invalidation of parents to disclosures of their child's pain experience potentially damages the clinical relationship and decreases the family's treatment adherence. Particularly for AWCP and their parents with marginalized identities, there is precedent to hypothesize that the combination of an already precarious mistrust of healthcare, past discrimination regarding non-normative beliefs about coping and treatment (Meints et al., 2016; Morales & Yong, 2021), and ruptured rapport with a new physician may lead to deleterious pain functioning outcomes.

The present analyses also indicated that physician behaviours may be uniquely impactful during diagnosis provision and treatment planning. In these sections of the clinical encounter, validation was associated with lower AWCP pain intensity and symptoms of depression at follow-up, while invalidation was associated with higher pain intensity and disability. Throughout chronic pain treatment, adherence is supported by health provider communication that is nonjudgmental and tailored to patient needs (Butow & Sharpe, 2013), which can be accomplished through effective validation or low invalidation of patient disclosures during any part of a clinical encounter. However, there is evidence that individuals are most likely to remember the peaks and ends of painful medical procedures, and that remembering the experience in a more positive light is associated with greater intervention adherence and likelihood of engaging in future treatment (Redelmeier et al., 2003). Based on the present exploratory analyses, emphasizing meaningful physician validation in the latter parts of a clinical encounter may lend to positive engagement with treatment and more favourable AWCP pain and mental health outcomes.

Limitations & Future Directions

The results of this study should be interpreted with limitations in mind. Firstly, the data set analyzed was collected between 2003 and 2006, so changes over time in clinical practices are important to consider. Clinical communication is ever evolving and improving; however, new physicians maintain that competence in this area is a training concern (Fernandes et al., 2020). Additionally, patient partners of this study indicated that they have continued to experience invalidation in their chronic pain care, suggesting that more recent clinical interactions still face similar communication challenges. Chronic pain conceptualization, however, has recently shifted to include biopsychosocial factors, so the study of more current clinical encounters may add valuable insight into the state of (in)validation in today's pain care.

Next, the analyses may have been limited by the low range of physician invalidating behaviours captured. Invalidation scores were comparable to those of another study situated in a medical clinic using the VIBCS (Holopainen et al., 2021), indicating that use of the scale was relevant and the current coding was rigorous. However, both groups of clinicians specialized in tertiary pain care and may have been particularly responsive to patient pain experiences. In addition, the analyses focused on a single interaction between one physician or care team within the AWCP and their parents' entire chronic pain treatment experience. This solitary encounter may not have been representative of general medical (in)validation within the healthcare system or capture the relationships that clinicians develop with their patients over time. Future research would benefit from systematic examinations of (in)validation in treatment settings that care for the majority of individuals experiencing pain (e.g., emergency rooms) and consideration of the time required to navigate and address patient mistrust due to past negative encounters.

The present study was also limited by its small sample size and lack of patient diversity. Analyses were likely underpowered for detecting additional significant associations between patient sociodemographic characteristics, physician (in)validation, and patient outcomes at follow-up, particularly in light of the conservative Bonferroni corrections that were necessary for multiple statistical tests. Racialized and gender diverse AWCP, as well as precision of capturing intersecting identities, were missing from the data. To date, most studies about racial diversity in pain treatment have only included Black, Latinx, and white patients (Meints 2016, Morales 2020, Rahim-Williams). Further, identity divorced from knowing the ways individuals conceptualize their identity (e.g., beliefs about masculinity and femininity) may not be informative for holistic understanding of the dynamic nature of interpersonal interactions (Nascimento et al., 2020). However, physicians likely based their assumptions on the identity presentation of the AWCP, so the adolescents' understanding of their identity may not have been as significant a limitation given the behavioural hypotheses of the current study. Importantly, we were also unable to account for differences in the sociodemographic traits of physicians within the existing sample. There is evidence that clinicians' whose identities match those of their patients engage in more understanding and supportive clinical encounters, which adds a layer of complexity to understanding how clinical interactions unfold. Future research should use larger and more diverse samples, as well as incorporate more accurate ways to capture norms and beliefs endorsed by patients of various identities. These improvements would provide more analytical power to examine the nuances of intersectional patient identity on how (in)validation occurs in clinical settings, and better inform the phenomenon and consequences of (in)validation.

Finally, understanding baseline characteristics of participants such as anxiety, mood, and pain experience could provide deeper insights into the co-construction of clinical relationships.

For example, it is well documented that girls typically have higher pre-treatment scores than boys across pain research (Boerner et al., 2017), which may impact how physicians initially interact with patients who they perceive as having higher needs. The present analysis also did not include data on AWCP treatment experience (i.e., encounters with other physicians, adherence to treatment recommendations, treatment efficacy) between the intake appointment and follow-up measures. Research building on the current study that considers baseline and interim patient traits would provide insight into how prior healthcare experiences and expectations around pain treatment influence (in)validation in clinical encounters, therefore, clarifying the directionality of associations between physician (in)validating behaviours and AWCP pain and mental health correlates.

Conclusion

The present study empirically characterized physician (in)validation towards AWCP and their parents seeking pain care. Physician specialists in a tertiary pediatric chronic pain clinic consistently validated AWCP, although there is opportunity for physicians to be less invalidating at the outset of clinical encounters. The level of physician invalidating behaviours towards families was more variable than the level of validating behaviours, and invalidation was more sensitive to patient gender and racial identity than validation. Individuals with chronic pain have indicated invalidation may have stronger impact than validation on their clinical experiences; thus, a clearer understanding of the ways social identity influences (in)validation is required to equitably improve clinical encounters. Preliminary evidence demonstrated that invalidation towards patients and their parents was associated with worse pain and mental health. These results provide a precedent to continue exploring how (in)validation may impact, and potentially be harnessed to improve, functioning outcomes for youth with chronic pain.

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Appendix A

Validating and Invalidating Behaviors Coding Scale (VIBCS; Fruzzetti, 2014)

Validating Behaviors	Invalidating Behaviors
V1: Attentive Listening Basic attention, active listening, ordinary non-verbal behaviors.	**IV1: Inattention** Not paying attention, distractible, changes the subject, anxious to leave or end the conversation.
V2: Acknowledging of Functionally Responding Accurately reflecting or acknowledging the other's disclosures of thoughts, feelings, wants; functionally responding by answering directly or problem solving.	**IV2: Missed Opportunities or Functional Unresponsiveness** Not participating actively, not providing evidence of tracking; missing opportunities to validate or validating at a lower level than needed; functionally unresponsive.
V3: Clarifying Helping the other to articulate or clarify private experiences; asking questions or offering ideas about what the other is thinking, feeling, wanting in an empathic (i.e., not insistent) way.	**IV3: Insisting** Insisting what the other <u>does</u> feel, think, or want, even in the face of contradictory statements; telling the other what they <u>should</u> feel, think, or want.
V4: Recontextualizing Communicating acceptance of public or private behaviors in context of past history; reducing the negative valence of a self-disclosure and putting a more positive spin on it.	**IV4: Increasing Negative Valence** Agreeing with or enhancing the other's self-invalidation when behavior makes sense in terms of history; increasing the negative valence when it could be spun differently.
V5: Normalizing Normalizing the other's public or private behavior given the present circumstance; emphasizing the "of course" of the behavior (i.e., "anybody would")	**IV5: Pathologizing** Pathologizing or criticizing the other's public or private behavior when it is reasonable in the present circumstance; gaslighting.
V6: Radical Genuineness Empathy for and acceptance of the other as a person; cheerleading; treating the other as competent and equal; invalidating the truly invalid.	**IV6: Attacking or Fragilizing** Patronizing, condescending, or contemptuous behavior; character assaults or over-generalizing negatives; treating the other as fragile, incompetent, or less than equal.
V7: Reciprocal Vulnerability Matched self-disclosure in the context of the other's vulnerability (focus stays on the other person).	**V7: Indifference to Vulnerability** Leaving the other hanging out to dry; assuming a more powerful position by not responding to vulnerable self-disclosures.