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The Interplay Between Psychological Distress and Psychological Strengths for Low-Income Patients with Rheumatic and Endocrine Conditions

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Abstract

Background/Objectives: Chronic medical conditions are comorbid with psychological disorders, often attributed to the weight of managing persistent demands associated with debilitating illness. Lifestyle adjustments, physical pain, and costs of health care can impose impairment of functioning, exacerbated by the onset of a chronic disease. While cause-and-effect directionality is difficult to ascertain, it is widely assumed that psychological stress can exacerbate the ability of patients to manage chronic medical conditions. Methods: The current study examined a novel model comprising five psychological factors which might explain variations in patients' level of adherence, satisfaction, and quality of life. The sample consisted primarily of 124 low-income, female Hispanic patients, who were patients diagnosed with rheumatic and endocrine medical diagnoses. Results: Psychological distress and the lingering psychological effects of the COVID-19 pandemic were negatively associated with patient adherence, satisfaction, and quality of life, and that patients' reports of the working alliances with their doctors moderated (i.e., significantly lessened) the negative association between the lingering impact of the COVID-19 pandemic and their satisfaction with care. Patients' self-efficacy, resilience, and working alliance were all positively and significantly associated with adherence, satisfaction, and QOL. The association between working alliance and satisfaction represents a very large effect ($r = 0.77$, $p < 0.001$). Path analysis found a direct effect between psychological distress (stand. est. = 0.28, $p = 0.05$) and treatment adherence and a direct effect between COVID-19 impact and adherence (stand. est. = −0.19, $p = 0.05$). Conclusions: This study provides evidence of the role that both psychological stress and psychological strengths play in the experience of receiving medical care for low-income patients with rheumatic and endocrine conditions. Psychological stress inhibits adherence, and the physician–patient working alliance moderates the negative correlation between COVID impact and treatment satisfaction.

Keywords: psychological distress; lingering COVID-19 impact; working alliance; rheumatology; endocrinology

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Academic Editor: Elena Nikiphorou

Received: 23 June 2025
Revised: 29 July 2025
Accepted: 5 August 2025
Published: 21 August 2025

Citation: Fuertes, J.N.; Nandoo, L.; Moore, M.T.; Anand, P.; Kumar, S.C. The Interplay Between Psychological Distress and Psychological Strengths for Low-Income Patients with Rheumatic and Endocrine Conditions. *Rheumato* **2025**, *5*, 11. https://doi.org/10.3390/rheumato5030011

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1. Introduction

The current study examined the interplay between five psychological factors in explaining variations in three patient health care outcomes: level of adherence, satisfaction, and quality of life. Two factors that were deemed as potential roadblocks to these outcomes

were level of psychological distress and the presence of a lingering and disruptive COVID-19 psychological effect. Factors identified as conducive to patient outcome were level of patient resilience, patient self-efficacy, and the quality of the relationship with their health care provider, measured in terms of the working alliance. These five factors are discussed below.

Six in ten adults in the United States have a chronic disease, which is the leading cause of death and disability [1]. Two families of chronic medical conditions are of particular interest to the current researchers: rheumatic and endocrine diseases (i.e., rheumatoid arthritis (RA), diabetes mellitus, and hyperthyroidism) due to their distinct associations with psychological difficulties. Rheumatic and endocrine diseases are common conditions among adults, according to U.S. prevalence estimates. The CDC estimates that about 58.5 million U.S. adults have a doctor-diagnosed rheumatoid disease, with estimates rising to 91 million when accounting for symptoms reported by undiagnosed individuals [2,3]. Endocrine disorders affect at least 5% of the U.S. population and currently is the fifth leading cause of death [4]. Lifestyle adjustments can impose impairment of functioning, exacerbated by the onset of a chronic disease. These adjustments have been shown to negatively impact financial, health-related quality of life (QOL) and psychological outcomes among patients.

Chronic and mental health conditions account for 90% of annual health care expenditures, totaling USD 4.1 trillion in the U.S [5]. Rheumatic diseases generate costs of approximately USD 304 billion annually, greater than the cost of cancer, when accounting for productivity, lost wages, and medical costs [2]. Between 2012 and 2017, excess medical costs per diabetic person increased from USD 8417 to USD 9601, totaling approximately USD 237 billion in direct costs [6].

Reduction in health-related quality of life (QOL) is a substantial issue in individuals with rheumatic and endocrine diseases. For example, individuals with diabetes face an increased risk of premature death (by 4.6 years, on average) and approximately one to two more years in a disabled state after the age of 50 [7]. Disabilities (e.g., severe mobility loss and limitations in daily living) often develop six to seven years earlier in this population, impacting basic ADL's such as taking medication and walking across a room [7]. Further, arthritis is a leading cause of disability among U.S. adults [8]. It accounts for disability in 8.6 million adults, primarily due to arthritis or rheumatism [9]. Among those with osteoarthritis, 80% of patients experience movement limitations, and 25% have restrictions in major activities of daily living [10]. In total, 21.1 million adults with arthritis report arthritis-attributable activity limitations related to joint symptoms [11].

It has been documented that depression is two to three times more common in individuals with chronic health conditions than healthy individuals, negatively impacting treatment outcomes and increasing mortality [12–15]. Among patients with RA, depression impairs coping ability, reduces medication adherence, and contributes to deterioration of QOL [16]. Similarly, the development of mood disorders, such as major depressive disorder (MDD), is nearly twice as prevalent in individuals with diabetes. A meta-analysis of thirty-nine studies (N = 20,218) found that MDD was present in 11% of diabetic patients with elevated depressive symptoms present amongst 31% [17]. Moreover, one third of diabetic individuals face a lifetime risk of depression at a level that compromises glycemic control, treatment adherence, and increases complication risks [17–19]. However, only 25% to 50% of individuals are diagnosed and treated for their depression [20]. Depressive symptoms also heighten suicide risk in diabetic patients, who are twice as likely to report suicidal ideation compared to non-diabetics [21,22].

Significant associations between the impact of the COVID-19 pandemic, health anxiety (HA), and chronic disease have been established. Heightened HA was reported in 47.3% of respondents during the early stages of the COVID-19 pandemic and chronic disease

was found to be a significant risk factor for HA [23]. Further, the presence of chronic pain, higher social isolation, higher disability related stigma, young age, and higher worries about getting COVID-19 were significant predictors of anxiety symptoms [24]. Patients with chronic medical illnesses are considered to be highly susceptible to long-term COVID-19 pandemic stress [25]. Namely, a reduction in physical activity and other healthy lifestyles associated with the drastic shift in daily life functioning may have led to worsening of clinical symptoms and psychological conditions for individuals with chronic illnesses. In addition, the awareness of the higher risk of severe or fatal COVID-19 infection has resulted in high levels of fear-related stress among individuals with chronic diseases [25].

Self-efficacy, the belief in one's capability for successfully participating in and completing treatment, [26] has been examined as a significant predictor of treatment outcomes. Among 1004 patients surveyed from primary care clinics, more than half had diagnosed comorbid anxiety disorders and two-thirds had major depression. Higher self-efficacy was associated with superior treatment outcomes across multiple measures. Notably, improvements in self-efficacy during treatment predicted reductions in symptoms and improvements in functioning up to 18 months later, regardless of baseline self-efficacy [26].

Resilience has been defined as one's capacity to successfully maintain or recover their mental health in response to significant adversity or risk [27]. The significance of resilience has been demonstrated in patients with chronic illnesses [28]. It is positively associated with QOL, satisfaction, and happiness, and negatively associated with psychological distress. Among 1252 participants with a chronic condition, predictors of non-resilience included loneliness, prior mental illness, fear of COVID-19 contamination, and concern for loved ones' health [25]. Overall, resilience can serve as a salient indicator of treatment outcomes, particularly QOL and psychological distress.

There is a wealth of research linking the physician–patient working alliance (PPWA) to successful treatment engagement in individuals with chronic conditions [29]. The PPWA captures patients' perceptions of trust in their provider and the degree of agreement on treatment goals and tasks. Studies consistently show moderate to strong positive associations between the PPWA and patients' ratings of perceived utility of treatment, their self-efficacy, and adherence to and satisfaction with treatment [29–31]. Despite this, little research has explored the PPWA as a moderating factor in underserved populations who experience elevated psychological distress. Given the vulnerability of this group to poorer outcomes and lower adherence, examining PPWA as a moderator may inform more effective, patient-centered interventions.

Patients with chronic medical conditions and who suffer from depression have been found to adhere less frequently to their medical treatments than patients without depression. Depression is therefore not only more prevalent in individuals with chronic illnesses but also compounds the challenges they face. Patients with depression are significantly less likely to adhere to treatment regimens, with a meta-analysis of 31 studies (N = 18,245) finding that depressed patients were 1.76 times more likely to be non-adherent than non-depressed patients [32]. This non-adherence is particularly consequential in diseases like diabetes and cardiovascular conditions, where it contributes to increased mortality [32]. Depression and anxiety also reduce satisfaction with treatment. For instance, only 61.8% of patients with these conditions expressed satisfaction with their current RA treatment [33]. Health-related QOL is defined as physical and mental health perceptions (i.e., energy level) and their correlates (i.e., health risks and their conditions) [34]. The relationship between QOL has also been explored via the association of personality disorders on rheumatological diseases. Specifically, participants reported poorer QOL, with lower scores in physical, psychological, and social domains [35,36].

The hypotheses examined in the current study were the following: There would be negative associations between patient psychological distress and the lingering impact of the COVID-19 pandemic with patient adherence, satisfaction, and quality of life. Conversely, it was hypothesized that there would be positive associations between patient resilience, self-efficacy, and working alliance with patient adherence, satisfaction, and quality of life. The study also examined a third, more exploratory hypothesis, that patients' resilience, self-efficacy, and perceptions of the working alliance with their medical providers would moderate the negative association between psychological distress and COVID-19 impact and adherence, satisfaction, and quality of life.

2. Methods

2.1. Participants

The current study recruited participants from rheumatology and endocrinology outpatient clinics at a hospital located in the Northeast region of the United States during a two-month period in early 2022. Participants recruited were not under direct care of any of the researchers in this study. Due to the high volume of Spanish speaking patients in the clinics, the survey was translated before data collection and participants were given the option of completing the survey in English or Spanish. No incentives were offered for participation. Patients voluntarily completed the survey with no compensation or direct benefit. Surveys were administered prior to the physician visit to minimize appointment disruption. Patients were eligible for participation in this study if they were 18 years or older with endocrine or rheumatic diseases. Additionally, they had to currently be receiving regular treatment in the clinics. Exclusion criteria included the following: (1) inability to read or write at an eighth-grade level in English or Spanish (assessed by the researchers during recruitment), (2) physical impairments that prevented the ability to read and write, and (3) it was their first visit to the clinic and had no prior interaction with the physician. All participants provided informed consent.

One hundred thirty-two patients were recruited and chose to participate in the study, but eight surveys were incomplete and deemed unusable by the researchers. Of the 124 participants, 69.4% (n = 86) were patients in the rheumatology clinic, with 30.6% (n = 38) patients from the endocrine clinic. Following approval from the host institution's ethical advisory committee, all patients signed consent forms that explained the nature of their participation in the study. An analysis of patients' responses showed that there were no statistically significant differences on any of the demographic variables presented below, including clinic, gender, race, and language used, therefore all subsequent results are reported for the patients as one group. 75% of the respondents were women (n = 93) and 24.2% were men (n = 30), with average age of 49 years (SD = 13.15). 49.2% (n = 67) of patients reported being Hispanic/Latino/a, 22.6% Black/African American (n = 28), 12.9% White (n = 16), 5.6% Other (n = 7) and 4.8% Asian or Pacific Islander (n = 6). 54% of the respondents spoke Spanish (n = 67) and 46% spoke English (n = 57). In terms of the highest level of education received, 48 (38.7%) participants reported high school, 22 (17.7%) reported college, 12 (9.7%) reported some college or 2-year degree or technical training, 12 (9.7%) reported up to fifth-grade, 12 (9.7%) reported up to eighth grade, and 11 (8.9%) reported graduate school or above. In terms of having COVID-19 vaccination, 100 responded "Yes," 12 reported being "Partially vaccinated," and 9 responded "Unvaccinated". 35% (n = 44) of the respondents indicated "yes" to having received a diagnosis of COVID-19, 57% (n = 71) responded "no," and 8% (n = 9) did not respond, however there were no significant differences in responses on any of the scales based on having previously received a COVID-19 diagnosis (t (94) = 1.23, p = 0.22, d = 0.25). Lastly, 59% of the participants reported an annual household income under USD 39,999 (n = 73), 14% did not respond (n = 17), 25% (n = 31) reported an income

between USD 40,000 and USD 70,000 and the remaining 2% (n = 3) reported an income over USD 70,000.

2.2. Measures

2.2.1. Demographic Form

The survey contained a demographic form that asked participants to provide information presented directly above.

2.2.2. Physician–Patient Working Alliance Inventory (PPWAI)-Patient Form

The PPWAI is a 12-item measure which assesses patients perceived: (1) agreement on treatment goals, (2) agreement on treatment plan, and (3) trust and liking with their doctors. As indicated in prior research [31], the subscales are highly interrelated and therefore the total score of the three scales is used. The internal consistency (Cronbach's alpha) was 0.93 with the current sample. The higher the score on the scale, the stronger the alliance.

2.2.3. Kessler Psychological Distress Scale (K10)

The K10 asks participants 10 questions related to the symptoms of distress in the previous four weeks that place the respondent at risk for anxiety and depressive disorders [37]. The K10 has consistently shown very good reliability [37–39]. In the current sample, the alpha coefficient of internal consistency for these items was 0.89.

2.2.4. Patient Satisfaction Questionnaire (PSQ)

A 6-item measure was adopted from the 11-item instrument developed [31] to measure patient satisfaction with their physician and the treatment that they have received. The alpha coefficient with current sample was 0.95.

2.2.5. General Adherence Measure (GAM)

The 5-GAM was included to assess patient adherence [40]. This measure was found to have good reliability, with a reported alpha coefficient of 0.87 [41]. In the current sample, the alpha coefficient for this measure was 0.78.

2.2.6. Brief Quality of Life Inventory (QOL)

The Center for Disease Control and Prevention (CDC) Health-Related Quality of Life Scale [34] was adopted and revised to create a 5-item measure to assess participant's health in the most recent 30 days. The alpha coefficient for this current sample was 0.84.

2.2.7. COVID-19 Impact Assessment (C19A)

The COVID-19 Impact Assessment was created by the first author. The measure consists of 10-items rated on a 7-item Likert scale from 1 (it is much improved) to 7 (it is much worse) and assesses the extent to which the pandemic has had lingering effects on the life of the respondent in various areas such as physical health, finances, and family. Items were summed to create a score ranging from 10 to 70. The alpha coefficient for this measure was 0.91 in the current sample.

2.2.8. New General Self-Efficacy Scale (SES)

This 5-item scale assesses participant's belief in their ability to achieve their goals, despite difficulties [42]. In the current sample, the alpha coefficient for this measure was 0.94, indicating an excellent degree of internal consistency.

2.2.9. Brief Resilience Coping Scale (RES)

The 4-item Brief Resilience Coping Scale [43] was used to assess resilience. The alpha coefficient for this current sample was 0.82, indicating a good degree of internal consistency.

2.2.10. Statistical Analyses

Path analysis was used to test a model that positioned psychological distress and COVID-19 impact as predictors, adherence, satisfaction, and quality of life as outcomes, and working alliance, self-efficacy and resilience as moderators between the predictors and outcomes. Indirect effects were estimated using a bias-corrected bootstrapping procedure to construct 95% confidence intervals [44]. Fit of the model to the data was uniformly excellent, CFI = 1.00, RMSEA < 0.001, SRMR < 0.001, according to conventional cut-offs (CFI > 0.95, RMSEA < 0.06, SRMR < 0.08) [45].

3. Results

Table 1 presents bivariate correlations among the scales. In line with our first two hypotheses, significant negative associations were found between COVID-19 impact and patients' rating of adherence, satisfaction, and QOL. Further, there were significant and negative associations between psychological distress and satisfaction and QOL with small to moderate effect sizes, but not with adherence. Also consistent with our hypothesis, patients' self-efficacy, resilience, and working alliance were all positively and significantly associated with adherence, satisfaction, and QOL, with effect sizes ranging from small to large. The association between working alliance and satisfaction represents a very large effect ($r = 0.77$, $p < 0.001$), indicating a strong and clinically meaningful relationship. Path analysis found a direct effect between psychological distress (stand. est. = 0.28, $p = 0.05$) and treatment adherence and a direct effect between COVID-19 impact and adherence (stand. est. = −0.19, $p = 0.05$). There were no significant direct effects on satisfaction or quality of life.

Table 1. Mean, standard deviation, internal consistency and Pearson correlation matrix ($n = 124$).

Measure	N	Mean	S.D.	Alpha	1	2	3	4	5	6	7	8
1. PPWAI	104	67.75	13.71	0.93	1.00							
2. K10	115	41.72	7.74	0.90	−0.31 [b]	1.00						
3. PSQ	109	25.88	4.57	0.95	0.77 [b]	−0.30 [b]	1.00					
4. QOL	121	14.60	4.18	0.84	0.22 [a]	−0.52 [b]	0.24 [a]	1.00				
5. SES	119	30.91	5.95	0.94	0.19	−0.26 [b]	0.23 [a]	0.28 [b]	1.00			
6. RES	114	15.44	3.06	0.82	0.25 [a]	−0.16	0.23 [a]	0.13	0.61 [b]	1.00		
7. GAM	107	20.71	3.87	0.79	0.34 [b]	−0.19	0.37 [b]	0.34 [b]	0.33 [b]	0.37 [b]	1.00	
8. C19A	101	30.65	10.95	0.91	−0.25 [a]	0.40 [b]	−0.40 [b]	−0.30 [b]	−0.36 [b]	−0.22 [b]	−0.25 [a]	1.00

Note: PPWAI: Physician–Patient Working Alliance Inventory; K10: Kessler Psychological Distress Scale: PSQ: Patient Satisfation Questionnaire; QOL: Brief Quality of Life Inventory; SES: General Self-Efficacy Scale; RES: Resilience Scale; GAM: General Adherence Measure; C19A: COVID-19 Impact Assessment. [a] $p < 0.05$ (2-tailed). [b] $p < 0.01$ (2-tailed).

Using PROCESS v4.2 and following recommendations of Preacher and Hayes [44], a total of 18 indirect effects were calculated (see Table 2), which examined the moderating effects of patients' resilience, self-efficacy, and ratings of the physician–patient working alliance on the relationship between psychological distress, COVID-19 impact, treatment adherence, satisfaction, and QOL. We found a moderating effect of the physician–patient working alliance on the otherwise negative relationship between COVID-19 impact and treatment satisfaction. Comparing the prediction of treatment satisfaction by COVID-19 impact for participants at ±1 SD from the mean of the physician–patient working alliance, the relationship between COVID-19 impact and treatment satisfaction is both much stronger, and more negative, for those reporting the lowest levels of the physician–patient working

alliance. The relationship between COVID-19 impact and treatment satisfaction is smaller and closer to zero for those at 1 SD above the mean on the working alliance, suggesting that the physician–patient working alliance can serve as a protective factor and reduce the negative impact of the COVID-19 pandemic on treatment satisfaction.

Table 2. Indirect effects ($CI_{95\%}$) of the Physician–Patient Working Alliance, Patient Resilience and Self-Efficacy on the Relationships between Symptoms of Psychopathology and COVID Anxiety and Treatment Adherence and Satisfaction, and Quality of Life.

Outcome	Interaction	Stand. Est.	$CI_{95\%}$
Adherence	K10 × PPWAI	−0.008	−0.02–0.002
	K10 × Resilience	−0.019	−0.07–0.03
	K10 × Self-Efficacy	−0.004	−0.04–0.03
	COVID Impact × PPWAI	0.009	−0.001–0.01
	COVID Impact × Resilience	−0.003	−0.04–0.04
	COVID Impact × Self-Efficacy	0.003	−0.02–0.03
Satisfaction	K10 × PPWAI	−0.004	−0.01–0.005
	K10 × Resilience	−0.011	−0.07–0.05
	K10 × Self-Efficacy	0.015	−0.02–0.04
	COVID Impact × PPWAI	0.007	<0.001–0.013
	COVID Impact × Resilience	0.004	−0.04–0.04
	COVID Impact × Self-Efficacy	−0.01	−0.03–0.01
Quality of Life	K10 × PPWAI	0.004	−0.01–0.02
	K10 × Resilience	−0.005	−0.06–0.05
	K10 × Self-Efficacy	−0.01	−0.04–0.01
	COVID Impact × PPWAI	−0.005	−0.02–0.006
	COVID Impact × Resilience	0.004	−0.06–0.05
	COVID Impact × Self-Efficacy	0.01	−0.02–0.03

Note: Stand. Est.: Standardized Estimate; PPWAI: Physician–Patient Working Alliance Inventory; K10: Kessler Psychological Distress Scale.

4. Discussion

The current study examined the convergence between psychology and medicine, namely the role that both psychological stress and psychological strengths play in the experience of receiving medical care for low-income patients with rheumatic and endocrine conditions. As the results indicate, our sample reported that psychological distress and conversely, psychological strengths, are both significantly associated with the patients' adherence to treatment, satisfaction with care, and quality of life. At the level of analysis of zero order correlations, stress detracts from patients' satisfaction and quality of life, while COVID-19 impact detracted from their reports of adherence, satisfaction, and quality of life. Path analysis, which is more stringent and accounts for all the variables of the study in tandem, found that psychological stress and COVID-19 impact were negatively associated with adherence. This result is consistent with research that has documented the deleterious effect of anxiety and depression in patients with medical conditions [32], including meta-analyses that have documented a much higher estimated odds of non-compliance in patients suffering from depression [32]. This study further documents the inverse link between psychological difficulties and patient's ability to make proper use of the medicine provided to them.

We also found that the working alliance moderated the negative association between COVID-19 impact on treatment satisfaction. While there is evidence that patient satisfaction is hampered by anxiety and depression [33], the current study found evidence that ongoing psychological and social effects of the pandemic continue to reduce patient satisfaction with care. Moreover, the moderation effect of the physician–patient alliance is consistent with previous research that has found the alliance to be highly and positively associated with patient satisfaction [29,31]. The current findings are consistent with prior research

but extends our understanding of how the alliance operates in the context of the COVID pandemic. The relationship between COVID-19 impact and treatment satisfaction is negligible in the presence of a strong working alliance. At low levels of COVID-19 impact, treatment satisfaction is highly similar for all patients, but at higher levels of COVID-19 impact (i.e., a score of 54 or higher) the alliance becomes a significant moderator. Patients who reported lower alliances (−1 SD) reported average satisfaction scores of 21, while those with a higher alliance (+1 SD) reported average satisfaction scores of about 29, which is a significant difference. The higher levels of agreement communication and trust in clinical dyads with stronger alliances diminished what was otherwise a negative link between COVID-19 impact and patient dissatisfaction. The alliance effects may have been particularly pronounced given that the sample primarily consisted of female patients with limited English-speaking abilities.

To translate these findings into practice, clinics serving low-income and linguistically diverse populations can adopt specific strategies to strengthen the PPWA. These include providing ongoing cultural competency and communication training for health care providers to build trust with diverse patients. Ensuring language access through professional medical interpreters, translated materials, and bilingual staff can improve understanding and foster agreement on treatment goals. Adoption of patient-centered care models that emphasize decision-making can encourage collaboration and respect, reinforcing care. Clinics might also implement routine assessments of the working alliance through brief patient surveys to identify and address alliance challenges early. These steps may improve adherence and satisfaction, helping to buffer the negative psychological effects highlighted by our study.

5. Conclusions

This study provides evidence of the link between psychology and medicine, namely the role that both psychological stress and psychological strengths play in the experience of receiving medical care for low-income patients with rheumatic and endocrine conditions. Psychological stress inhibits adherence, and the physician–patient working alliance moderates the negative correlation between COVID impact and treatment satisfaction. These findings are significant, as they provide the basis for the psychological impact of COVID-19 to be assessed in future studies of rheumatic and endocrine chronic diseases. Future research should continue to examine the role of psychological stress and strengths on patient coping and use of medicine, particularly with a more socially and economically diverse populations in the U.S. As the current study demonstrated that the physician–patient working alliance is a protective predictor of patient satisfaction with care, future research should continue to examine its role in safeguarding and promoting patient satisfaction and make use of ratings from the patient as well as the medical care provider.

There are several limitations that should be noted. First, this study used a cross-sectional design, which precludes causal inference and limits the ability to determine the directionality of the observed relationships. Second, this study does not assess the perspective of the medical provider in the physician–patient working alliance, which limits the ability to fully capture the bidirectional nature of the alliance. Future research could incorporate provider-rated alliance scores to explore whether agreement or divergence between patient and provider perceptions of alliance offers additional explanatory value. Third, although the participants were guaranteed anonymity and confidentiality, the sample consisted primarily of individuals without U.S. citizenship, permanent residency, or a valid visa. This may have influenced their willingness to report their true perceptions and beliefs, perhaps out of concern for their immigration status or continuity of care. Forth, the sample was skewed toward women (75%) and Hispanic/Latino/a patients (49%), which

may limit the generalizability of findings to more demographically diverse populations. While this reflects the patient population of the clinics sampled, it underscores the need to replicate the findings in other clinical settings. Additionally, because surveys were completed immediately before participant's physician visits, there is also a risk of social desirability bias, especially in responses related to care satisfaction and the physician–patient relationship. The COVID-19 Impact Assessment used in this study is a novel, unvalidated measure developed by the first author. While internal consistency was high, additional psychometric evaluation (e.g., factor structure, convergent validity) is needed before the measure can be more widely used. It is inclusion here was guided by content relevance and preliminary testing in the target population. Lastly, while the study captured a snapshot of patients experiences at a specific point in time, these experiences likely reflect persistent realities for many patients coping with enduring psychological difficulties and living with chronic illness, particularly among those with limited English proficiency and financial means.

Author Contributions: Conceptualization, J.N.F. and L.N.; methodology, J.N.F. and L.N.; software, M.T.M.; validation, J.N.F., L.N. and M.T.M.; formal analysis, M.T.M.; investigation, P.A.; resources, P.A. and S.C.K.; data curation P.A. and S.C.K.; writing—original draft preparation, J.N.F. and L.N.; writing—review and editing, J.N.F., L.N., M.T.M., P.A. and S.C.K.; visualization, J.N.F.; supervision, J.N.F.; project administration, J.N.F., L.N., P.A. and S.C.K.; All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of Nassau Health Care Corporation Institutional Review Board (IRB# 21-396, 26 February 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data are available upon request.

Conflicts of Interest: The authors report no financial or non-financial conflicts of interest.

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