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Examining Mindfulness Facets In Young Adults With Chronic Pain Ages 18-24

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Abstract: ***Introduction: Chronic pain functions as a complex health problem that interferes with daily activities and reduces life quality while putting extensive pressure on worldwide healthcare systems. The effectiveness of mindfulness-based interventions in chronic pain management has been established but researchers lack understanding of how naturally occurring mindfulness traits impact pain outcomes among young adults who experience crucial developmental changes. The study investigates the connections between chronic pain symptoms and pain interference with mindfulness facets and treatment outcomes in young adults between 18 and 24 years old.***

Methods: A cross-sectional survey research method recruited 196 participants who were diverse in their educational backgrounds. The study collected pain intensity and interference data through the Brief Pain Inventory and measured mindfulness traits via the Five Facet Mindfulness Questionnaire and evaluated treatment efficacy through participant self-report of percentage relief. The research utilized descriptive statistics alongside t-tests and ANOVAs and chi-square tests and Pearson correlations for statistical evaluation.

Results: The study findings indicated that chronic pain affects 95.4% of participants and spread throughout various body regions. The reported pain intensity persisted at elevated levels despite reaching its minimum measurement points. The study revealed different patterns between mindfulness facets because Acting with Awareness and Non-Judging showed negative associations with pain interference, yet Observing and Non-Reactivity displayed positive relationships with pain intensity. The study found gender differences since women exhibited higher initial pain reports but achieved better treatment outcomes. Participants who were younger experienced higher peak pain measurements than their older counterparts.

Conclusions: The research establishes acceptance-based mindfulness facets as effective tools which help minimize the functional effects of chronic pain in young adult populations. The findings provide guidance for developing mindfulness-based interventions including Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy which should address the specific developmental requirements and clinical needs of this population.

Keywords: pain interference, mindfulness traits, emerging adulthood

I. INTRODUCTION

The World Health Organization defines chronic pain as pain that persists longer than three months which represents both a social issue and a public health problem (Breivik et al., 2006; Fayaz et al., 2016). Chronic pain exists among one-fifth of the global adult population with specific prevalence rates that differ among regions together with gender and medical conditions. Chronic pain affects approximately 20% of American adults according to research which reveals that a small subset deals with high-impact pain that blocks major life activities (Dahlhamer et al., 2018).

Chronic pain affects young adults aged 18–24 as much as middle-aged and older adults do despite their developmental

stage characterized by growing independence and identity exploration and education and employment transitions (Arnett, 2000). During this critical period of development chronic pain creates barriers to educational achievement and reduces job prospects and social bonding opportunities. Students who experience chronic pain face challenges including missing classes and reduced participation in extracurricular activities as well as problems concentrating. The entrance to the workforce is hindered by pain-related constraints which negatively affect work output and professional growth.

Chronic pain creates emotional distress which leads to anxiety alongside depression and social withdrawal (Gatchel et al., 2007). Young adults need both biomedical treatment and psychological coping and social support mechanisms to address their chronic pain effectively. Mindfulness presents a promising solution because it helps people develop awareness and acceptance of present moments without judgment. The study examines the relationship between mindfulness facets and their effects on pain intensity and interference alongside treatment relief outcomes for young adults experiencing chronic pain.

II. SCIENTIFIC METHODS

Provide a detailed methods section to outline the scientific approach used to collect data.

PARTICIPANTS

The research included 196 young adults between the ages of 18 and 24. The majority (85.7%, n = 168) were aged 22–24, while the remaining 14.3% (n = 28) were aged 18–21. The participants consisted of 63% female (n = 123) and 37% male (n = 72) with 0.5% identifying as non-binary (n = 1). The participants' educational background consisted of some college coursework (28.6%) and college graduation (40.8%) alongside graduate-level enrollment (29.6%). Most participants (95.4%) experienced severe pain during the previous week. Participants were provided informed consent electronically before beginning the survey. The study protocol was reviewed and approved by an Institutional Review Board.

PROTOCOL

The research collected data from participants who signed up through Amazon Mechanical Turk (MTurk) since this platform serves as a common resource for behavioral studies. Eligibility criteria included age between 18 and 24 years, self-reported experience of chronic pain defined as pain persisting for more than three months or recurring frequently over an extended period, and proficiency in English sufficient to complete the survey.

Surveys were administered online via a secure platform. Participants could complete the survey at their convenience. On average, completion took 10–15 minutes. Pain intensity and interference data were collected through numeric rating scales adapted from the Brief Pain Inventory. Mindfulness traits were measured using the Five Facet Mindfulness Questionnaire, which assesses Observing, Describing, Acting with Awareness, Non-Judging, and Non-Reactivity. Treatment efficacy was evaluated through participant self-report of percentage relief.

STATISTICAL ANALYSIS

Descriptive statistics were computed to summarize sample characteristics and variable distributions. Group differences were examined using independent-samples t-tests for gender and one-way ANOVAs for age. Chi-square tests were used for categorical variables. Associations between mindfulness facets and pain variables were explored using Pearson correlations. Statistical significance was set a priori at $p \leq .05$.

III. RESULTS

OVERVIEW OF RESULTS

Participants reported consistently high levels of chronic pain across intensity and interference measures. Mean pain intensity scores remained elevated across worst, average, least, and current pain ratings. Pain interference was substantial across all assessed life domains, particularly sleep, enjoyment of life, and general activity. Mindfulness facet scores varied, with higher scores observed for Observing and Non-Reactivity and lower scores for Acting with Awareness and Non-Judging. Correlational analyses demonstrated distinct patterns between acceptance-based mindfulness facets and pain interference, as well as between awareness-based facets and pain intensity. Group comparisons revealed statistically significant differences by gender and age.

	Means ± SD
Worst pain (past week)	7.6 ± 2.0
Average pain (past week)	7.4 ± 1.8
Least pain (past week)	7.2 ± 2.1
Current pain	7.4 ± 2.1

Data are Means ± SD

Table 1: Pain Intensity Ratings (0-10 scale).

Domain	**M ± SD**
General activity	7.1 ± 2.5
Mood	6.9 ± 2.4
Walking ability	6.8 ± 2.6
Normal work	6.9 ± 2.5
Relations with others	6.6 ± 2.4
Sleep	7.2 ± 2.4
Enjoyment of life	7.1 ± 2.5

Data are Means ± SD

Table 2: Pain Interference Across Life Domains (0-10 scale)

Mindfulness Facet	M ± SD
Observing	3.9 ± 0.5
Describing	3.4 ± 0.6
Acting with	2.4 ± 0.7
Awareness	2.3 ± 0.7
Non-Judging	3.7 ± 0.6
Non-Reactivity	3.1 ± 0.3
Overall mindfulness	

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Data are Means ± SD

Table 3: Mindfulness Facet Scores

Note. All values are reported as Means ± SD and rounded to the nearest tenth. Statistical significance was set a priori at $p \leq .05$.

IV. MINDFULNESS FACET SCORES

Mindfulness scores varied notably by facet. Observing (M = 3.88, SD = 0.54) and Non-Reactivity (M = 3.74, SD = 0.63) were the highest-scoring dimensions, suggesting participants frequently notice bodily sensations and can sometimes remain calm in distressing situations. However, Acting with Awareness (M = 2.39, SD = 0.72) and Non-Judging (M = 2.32, SD = 0.66) were relatively low, indicating a tendency toward automatic or distracted behavior and self-critical thinking. The overall mindfulness score was moderate (M = 3.13, SD = 0.26).

V. CORRELATIONS AMONG KEY VARIABLES

The analysis of Pearson correlation showed that mindfulness dimensions and pain intensity and interference as well as treatment effects share complex associations. The research results indicated that individuals with higher mindfulness abilities experienced lower daily life disruption based on a negative moderate correlation between overall mindfulness and pain interference ($r = –.41$, $p < .001$). However, the research did not show any significant connection between the level of pain intensity and overall mindfulness ($r = –.08$, ns).

The analysis of mindfulness facets revealed that the combination of Acting with Awareness and Non-Judging demonstrated strong negative connections to pain interference as well as a weaker negative relationship to pain intensity which indicates that attentional focus together with acceptance-oriented mindfulness functions as a buffer against functional pain effects. Observing and non-reactivity showed positive correlations with pain intensity and interference which could indicate that awareness of discomfort exists without sufficient acceptance abilities.

VI. GROUP COMPARISONS

The study revealed gender differences in the reported results for pain assessment. The study results indicated that females reported the lowest pain level at 7.44 points compared to 6.76 points for males ($t(193) = 2.06$, $p = .040$) and females experienced more sleep interference at 7.43 points than males at 6.86 points ($t(193) = 2.28$, $p = .024$). Females demonstrated superior treatment response to pain with an average relief of 69.6% compared to male participants who obtained 63.8% relief according to the $\chi^2(1, N = 195) = 5.65$, $p = .017$ test.

Participants within the 18–21 age range experienced more severe worst pain in the past week according to their reports (M = 8.14) than the 22–24 age group (M = 7.49) based on $t(194) = 2.74$, $p = .007$.

VII. DISCUSSION

This research investigates the connection between mindfulness characteristics and both chronic pain severity and disruption as well as therapeutic effect perception in young adults aged 18–24. The study supported most of the proposed research questions while contributing to existing research on chronic pain management from a biopsychosocial perspective specifically for younger people.

The results supported Hypothesis 1 because acceptance-oriented mindfulness facets specifically Acting with Awareness and Non-Judging demonstrated strong relationships with lower pain interference. The findings validate research by Morone and Greco and Pal et al. that shows how attentional focus and acceptance-based mindfulness practices protect daily functioning from chronic pain effects while pain intensity remains unaffected. People who practice purposeful experience awareness and self-avoidance can control their emotional response to pain which enables them to continue meaningful activities despite persistent pain.

The Observing and Non-Reactivity facets showed positive relationships with both pain intensity and interference as stated in Hypothesis 2. Prior research has suggested that observational awareness without acceptance skills may enhance perception of unpleasant sensations, which aligns with the current findings. Heightened awareness of bodily sensations without nonjudgmental acceptance may increase distress rather than alleviate pain-related burden.

Gender differences partially supported Hypothesis 3. Female participants reported higher pain levels and greater sleep interference than males, yet also reported greater perceived treatment relief. Younger participants aged 18–21 reported higher peak pain intensity compared to participants aged 22–24. These findings suggest that developmental stage and gender-related factors may influence both pain perception and response to treatment in young adults.

These findings support the biopsychosocial model of chronic pain, which emphasizes the interaction of psychological processes with biological and social factors in shaping pain outcomes. Acceptance-based mindfulness traits appear particularly relevant for reducing functional impairment associated with chronic pain during young adulthood.

VIII. CONCLUSION

Mindfulness traits influence how young adults experience and function with chronic pain. Acceptance-oriented facets, specifically Acting with Awareness and Non-Judging, were associated with reduced pain interference despite persistently high pain intensity. These findings highlight the importance of integrating acceptance-focused mindfulness strategies into chronic pain interventions designed for young adult populations.

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