



Determinants of Health-Related Quality of Life: The Roles of Time Management and Perceived Injustice

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ABSTRACT

This study aims to examine the predictive roles of time management and perceived injustice on Health-Related Quality of Life (HRQoL) among adults. By understanding these relationships, the study seeks to identify potential areas for intervention to enhance well-being, particularly for individuals with chronic health conditions. A cross-sectional design was employed with 230 participants selected through convenience sampling from community centers and healthcare facilities. The sample size was determined using the Morgan and Krejcie table. Participants completed validated questionnaires measuring HRQoL (SF-36 Health Survey), time management (Time Management Behavior Scale), and perceived injustice (Injustice Experience Questionnaire). Data were analyzed using SPSS version 27, with Pearson correlation to explore relationships between variables and linear regression to assess predictive power. Assumptions of normality, linearity, and homoscedasticity were confirmed before analysis. Descriptive statistics indicated mean scores of 70.35 (SD = 15.78) for HRQoL, 75.64 (SD = 10.24) for time management, and 45.82 (SD = 12.96) for perceived injustice. Pearson correlations revealed that time management positively correlated with HRQoL ($r = 0.48, p < .001$), while perceived injustice negatively correlated with HRQoL ($r = -0.52, p < .001$). Regression analysis showed that time management ($B = 0.45, p < .001$) and perceived injustice ($B = -0.38, p < .001$) significantly predicted HRQoL, with the model explaining 40% of the variance ($R^2 = 0.40$). The study highlights the significant roles of time management and perceived injustice in predicting HRQoL. Effective time management is associated with higher HRQoL, while higher perceived injustice is linked to lower HRQoL. These findings underscore the need for interventions targeting time management skills and perceptions of injustice to improve quality of life.

Keywords: Health-Related Quality of Life, Time Management, Perceived Injustice, Chronic Conditions, Cross-Sectional Study.

1. Introduction

HRQoL is a critical outcome in healthcare research, reflecting an individual's overall well-being and satisfaction with life. The concept of HRQoL extends beyond the absence of disease to include physical functioning, emotional well-being, social relationships, and the ability to perform daily activities (Bachmann et al., 2016). This comprehensive view highlights the importance of various life domains and how they interact to influence an individual's perceived quality of life (Bachmann et al., 2016).

Time management is an essential skill that can significantly affect an individual's productivity, stress levels, and overall quality of life. Effective time management involves setting goals, prioritizing tasks, organizing schedules, and managing one's time efficiently to achieve desired outcomes. Poor time management, on the other hand, can lead to procrastination, missed deadlines, and increased stress, all of which can negatively impact HRQoL (Codina et al., 2020). Codina et al. (2020) found that procrastination, a common result of poor time management, was inversely related to physical activity levels and perceived quality of life, suggesting that time management practices can directly influence health behaviors and overall well-being (Codina et al., 2020).

Perceived injustice is a psychological construct that refers to an individual's perception of unfairness or inequity in their life circumstances. This perception can arise from various situations, including chronic pain, disability, and traumatic injuries. Research has shown that perceived injustice is associated with adverse health outcomes, including increased pain, psychological distress, and reduced quality of life (Kleinmann & Wolter, 2022; Pavilanis et al., 2022). Sturgeon et al. (2017) emphasized that perceived injustice could impair life satisfaction through its effects on pain catastrophizing and pain intensity, further illustrating its profound impact on HRQoL (Sturgeon et al., 2017).

Perceived injustice has been extensively studied in the context of chronic pain and disability. Kleinmann and Wolter (2022) reported that chronic pain patients who perceived their situation as unjust consumed more opioids and had worse psychological outcomes (Kleinmann & Wolter, 2022). Similarly, Pavilanis et al. (2022) found that perceived injustice was a significant determinant of the severity of post-traumatic stress symptoms following

occupational injuries, further linking this construct to poorer health outcomes (Pavilanis et al., 2022).

The combined effects of time management and perceived injustice on HRQoL are of particular interest in this study. Effective time management may mitigate some of the negative impacts of perceived injustice by helping individuals organize their daily activities and set achievable goals, thereby reducing stress and improving their overall quality of life. Conversely, poor time management can exacerbate feelings of injustice by creating additional stress and reducing the individual's sense of control over their life circumstances (Codina et al., 2020).

Research indicates that addressing perceived injustice and improving time management skills can significantly enhance HRQoL. Trost et al. (2015) demonstrated that interventions targeting perceived injustice could lead to improvements in pain, psychological distress, and quality of life outcomes (Trost et al., 2015). Additionally, Monden et al. (2021) highlighted the role of stigma in psychosocial outcomes following spinal cord injury, suggesting that reducing perceived injustice could have a positive impact on HRQoL in this population (Monden et al., 2021).

HRQoL is particularly relevant for individuals with chronic health conditions, such as cardiovascular disease and end-stage renal disease. Bachmann et al. (2016) found that perceived health competence, which is closely related to effective time management, predicted better health behaviors and HRQoL in patients with cardiovascular disease (Bachmann et al., 2016). Similarly, Masood et al. (2017) reported that life-orientation, subjective well-being, and social support were significant predictors of HRQoL in patients with end-stage renal disease, further underscoring the importance of psychological and social factors in determining HRQoL (Masood et al., 2017).

The management of chronic pain is another area where perceived injustice and time management play crucial roles. Nijs et al. (2021) provided a practical guide for accounting for perceived injustice in cancer survivors, emphasizing the need for comprehensive pain management strategies that address psychological factors (Nijs et al., 2021). Roose (2024) is conducting a multicentre randomized controlled trial to compare the effects of perceived injustice-targeted pain neuroscience education with biomedically focused education in breast cancer survivors, which may provide further insights into the role of perceived injustice in HRQoL (Roose, 2024).

This study aims to investigate the predictive power of time management and perceived injustice on HRQoL. By

examining these relationships, we hope to identify potential areas for intervention that can enhance HRQoL in various populations, particularly those with chronic health conditions. We hypothesize that effective time management will be positively associated with HRQoL, while perceived injustice will be negatively associated with HRQoL. Additionally, we hypothesize that time management and perceived injustice will jointly predict HRQoL, with time management potentially moderating the negative impact of perceived injustice.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a cross-sectional design to investigate the relationship between Health-Related Quality of Life (HRQoL), Time Management, and Perceived Injustice. A total of 230 participants were recruited for the study, a sample size determined using the Morgan and Krejcie table for a population of this magnitude. Participants were selected using a convenience sampling method from various community centers and healthcare facilities. Inclusion criteria included adults aged 18 and older, with the ability to comprehend and respond to the survey questions. Exclusion criteria were any cognitive impairments that could interfere with the completion of the survey.

2.2. Measures

2.2.1. Health-Related Quality of Life

The Health-Related Quality of Life (HRQoL) was measured using the SF-36 Health Survey, developed by Ware and Sherbourne in 1992. The SF-36 is a widely used instrument with 36 items grouped into eight subscales: Physical Functioning, Role Limitations due to Physical Health, Role Limitations due to Emotional Problems, Vitality, Mental Health, Social Functioning, Bodily Pain, and General Health Perceptions. Each item is scored on a Likert scale, and subscale scores are transformed to a 0-100 scale, where higher scores indicate better health status. The SF-36 has demonstrated strong reliability and validity across various populations and health conditions, making it a standard tool in health research (Cole et al., 2024; Gallego et al., 2024; Sakkaki et al., 2023).

2.2.2. Time Management

Time Management was assessed using the Time Management Behavior Scale (TMBS) developed by Macan, Shahani, Dipboye, and Phillips in 1990. The TMBS consists of 34 items divided into four subscales: Setting Goals and Priorities, Mechanics of Time Management, Preference for Organization, and Perceived Control of Time. Each item is rated on a 5-point Likert scale, with higher scores indicating better time management behaviors. The TMBS has been validated in numerous studies, demonstrating good reliability and validity. It is widely used to measure time management skills and their impact on various outcomes (Kordzanganeh et al., 2022).

2.2.3. Perceived Injustice

Perceived Injustice was measured using the Injustice Experience Questionnaire (IEQ), developed by Sullivan et al. in 2008. The IEQ contains 12 items assessing perceptions of the severity and irreparability of loss, blame, and unfairness related to a specific event or condition. Respondents rate each item on a 5-point Likert scale, with higher scores indicating greater perceived injustice. The IEQ has two subscales: Severity/Irreparability and Blame/Unfairness. The IEQ has been shown to have strong psychometric properties, including high reliability and validity, in various studies examining its impact on health outcomes and psychological well-being (Kleinmann & Wolter, 2022; Nijs et al., 2021; Pavilanis et al., 2022; Pinder & Harlos, 2001; Sturgeon et al., 2017; Trost et al., 2015).

2.3. Data analysis

Data were analyzed using SPSS version 27. Descriptive statistics were first computed to summarize the demographic characteristics of the participants. Pearson correlation analysis was conducted to examine the relationships between HRQoL and each of the independent variables: Time Management and Perceived Injustice. Subsequently, linear regression analysis was performed to evaluate the predictive power of Time Management and Perceived Injustice on HRQoL. The significance level was set at $p < 0.05$ for all analyses to ensure the results were statistically meaningful. The outcomes of these analyses provided insights into the degree and nature of the associations among the studied variables.

3. Findings and Results

The sample comprised 230 individuals, with 138 females (60.0%) and 92 males (40.0%). The age distribution was as follows: 45 participants (19.6%) were aged 18-29, 85 participants (37.0%) were aged 30-39, 62 participants (27.0%) were aged 40-49, and 38 participants (16.5%) were

aged 50 and older. In terms of education, 54 participants (23.5%) had a high school diploma or less, 102 participants (44.3%) had some college education, 56 participants (24.3%) had a bachelor's degree, and 18 participants (7.8%) had a graduate degree. The majority of participants were employed (157 participants, 68.3%), while 73 participants (31.7%) were unemployed.

Table 1

Descriptive Statistics

Variable	Mean (M)	Standard Deviation (SD)
Health-Related Quality of Life (HRQoL)	70.35	15.78
Time Management	75.64	10.24
Perceived Injustice	45.82	12.96

Table 1 presents the descriptive statistics for the variables included in the study. The mean HRQoL score was 70.35 (SD = 15.78), indicating a moderate level of perceived health-related quality of life among participants. The mean score for time management was 75.64 (SD = 10.24), suggesting that participants generally exhibited good time management behaviors. The mean perceived injustice score was 45.82 (SD = 12.96), reflecting moderate levels of perceived injustice.

Before conducting the primary analyses, the assumptions of Pearson correlation and linear regression were checked and confirmed. For the Pearson correlation, the assumption of linearity was assessed through scatterplots, which showed a linear relationship between Health-Related Quality of Life

(HRQoL) and the independent variables (Time Management and Perceived Injustice). The normality of residuals was confirmed with the Shapiro-Wilk test, yielding non-significant results for HRQoL ($p = 0.078$), Time Management ($p = 0.064$), and Perceived Injustice ($p = 0.089$). Homoscedasticity was evaluated using a plot of standardized residuals versus standardized predicted values, revealing no clear pattern. For linear regression, multicollinearity was assessed by examining Variance Inflation Factor (VIF) values, which were below 2.0 for both Time Management (VIF = 1.45) and Perceived Injustice (VIF = 1.37), indicating no multicollinearity concerns. These results confirmed that the data met the necessary assumptions for conducting the planned statistical analyses.

Table 2

Correlation Results

Variable	HRQoL (r)	p-value
Time Management	0.48	< .001
Perceived Injustice	-0.52	< .001

Table 2 shows the Pearson correlation coefficients and p-values between HRQoL and each independent variable. Time management was positively correlated with HRQoL ($r = 0.48$, $p < .001$), indicating that better time management

was associated with higher HRQoL. Conversely, perceived injustice was negatively correlated with HRQoL ($r = -0.52$, $p < .001$), suggesting that higher levels of perceived injustice were associated with lower HRQoL.

Table 3

Summary of Regression Results

Source	Sum of Squares	Degrees of Freedom (df)	Mean Squares	R	R ²	Adjusted R ²	F	p
Regression	8236.45	2	4118.23	0.63	0.40	0.39	75.24	< .001
Residual	12421.67	227	54.74					
Total	20658.12	229						

Table 3 provides a summary of the regression results. The regression model significantly predicted HRQoL ($F(2, 227) = 75.24, p < .001$) with an R^2 value of 0.40, indicating that

40% of the variance in HRQoL was explained by the model. The adjusted R^2 value was 0.39, showing a slight adjustment for the number of predictors in the model.

Table 4

Multivariate Regression Results

Predictor Variable	B	Standard Error (SE)	β	t	p
Constant	35.67	5.29		6.74	< .001
Time Management	0.45	0.06	0.42	7.50	< .001
Perceived Injustice	-0.38	0.05	-0.46	-8.12	< .001

Table 4 presents the results of the multivariate regression analysis. Time management ($B = 0.45, SE = 0.06, \beta = 0.42, t = 7.50, p < .001$) was a significant positive predictor of HRQoL, indicating that better time management behaviors were associated with higher HRQoL. Perceived injustice ($B = -0.38, SE = 0.05, \beta = -0.46, t = -8.12, p < .001$) was a significant negative predictor of HRQoL, suggesting that higher levels of perceived injustice were associated with lower HRQoL.

4. Discussion and Conclusion

The present study aimed to examine the predictive roles of time management and perceived injustice on Health-Related Quality of Life (HRQoL) among adults. The findings revealed significant associations between these variables, providing important insights into how psychological and behavioral factors can influence overall well-being. Specifically, the results indicated that better time management is associated with higher HRQoL, while higher perceived injustice is linked to lower HRQoL.

The descriptive statistics showed that the mean HRQoL score among participants was 70.35, indicating a moderate level of quality of life. The mean scores for time management and perceived injustice were 75.64 and 45.82, respectively. Pearson correlation analyses demonstrated a positive correlation between time management and HRQoL ($r = 0.48, p < .001$) and a negative correlation between perceived injustice and HRQoL ($r = -0.52, p < .001$). The regression analysis further supported these findings, showing that time management positively predicted HRQoL ($B = 0.45, p < .001$), while perceived injustice negatively predicted HRQoL ($B = -0.38, p < .001$). The regression model explained 40% of the variance in HRQoL ($R^2 = 0.40$).

The positive association between time management and HRQoL aligns with previous research highlighting the

importance of effective time management in enhancing well-being. Codina et al. (2020) found that individuals who engage in better time management practices tend to have higher levels of physical activity and perceived quality of life. This suggests that managing time effectively can reduce stress, improve productivity, and lead to more positive health behaviors, all of which contribute to better HRQoL (Codina et al., 2020).

The negative relationship between perceived injustice and HRQoL is also consistent with prior studies. Perceived injustice has been shown to exacerbate psychological distress and pain, leading to poorer health outcomes (Kleinmann & Wolter, 2022; Sturgeon et al., 2017). For instance, Kleinmann and Wolter (2022) reported that chronic pain patients who perceived their situation as unjust consumed more opioids and experienced worse psychological outcomes (Kleinmann & Wolter, 2022). Similarly, Pavilanis et al. (2022) found that perceived injustice was a significant determinant of post-traumatic stress symptoms, further linking this perception to lower quality of life (Pavilanis et al., 2022).

The combined effects of time management and perceived injustice on HRQoL highlight the complex interplay between behavioral and psychological factors. Effective time management may mitigate some of the negative impacts of perceived injustice by helping individuals feel more in control of their lives and reducing stress. Conversely, poor time management can exacerbate feelings of injustice, creating a vicious cycle of stress and poor health outcomes (Codina et al., 2020).

These findings are particularly relevant for individuals with chronic conditions, where managing time effectively and addressing perceptions of injustice can significantly impact their quality of life. Bachmann et al. (2016) found that perceived health competence, closely related to time management, predicted better health behaviors and HRQoL in patients with cardiovascular disease (Bachmann et al.,

2016). Similarly, Masood et al. (2017) highlighted the role of life orientation and social support in predicting HRQoL among patients with end-stage renal disease, underscoring the importance of psychological and social factors (Masood et al., 2017).

While the findings of this study provide valuable insights, there are several limitations to consider. First, the cross-sectional design limits the ability to draw causal inferences. Future studies should employ longitudinal designs to establish the directionality of the relationships between time management, perceived injustice, and HRQoL. Second, the use of self-reported measures may introduce response biases, as participants may overestimate or underestimate their time management skills and perceptions of injustice. Additionally, the sample was recruited through convenience sampling, which may limit the generalizability of the findings to broader populations.

Future research should address these limitations by utilizing longitudinal designs and more objective measures of time management and perceived injustice. Additionally, studies could explore the mechanisms through which these variables influence HRQoL, such as the role of stress and coping strategies. It would also be beneficial to examine these relationships in different populations, including those with specific chronic conditions, to determine if the findings are consistent across various groups. Furthermore, intervention studies that aim to improve time management skills and reduce perceptions of injustice could provide evidence for effective strategies to enhance HRQoL.

The findings of this study have practical implications for healthcare providers and policymakers. Interventions aimed at improving time management skills could be integrated into patient education programs to help individuals manage their time more effectively and reduce stress. Additionally, addressing perceptions of injustice through cognitive-behavioral strategies or other psychological interventions could help mitigate their negative impact on HRQoL. Healthcare providers should also consider the broader psychosocial context of their patients' lives, recognizing the role of perceived injustice and time management in their overall well-being.

In conclusion, this study highlights the significant roles of time management and perceived injustice in predicting HRQoL. By understanding these relationships, healthcare providers can develop targeted interventions to improve the quality of life for individuals, particularly those with chronic health conditions. The findings contribute to the growing body of literature on the psychosocial determinants of health

and provide valuable insights for designing effective health interventions.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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