

## MEKANISME KOPING, EFIKASI DIRI DAN KUALITAS HIDUP DI ANTARA PASIEN DIABETES MELLITUS TIPE II

### *Coping Mechanisms, Self-Efficacy and Quality of Life Among Patients with Type II Diabetes Mellitus*

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#### Abstrak

**Latar belakang:** Diabetes Melitus adalah salah satu dari empat penyakit tidak menular yang telah menunjukkan peningkatan prevalensi yang signifikan selama bertahun-tahun. Penerapan strategi koping yang efektif berperan dalam mengelola dan mencegah komplikasi diabetes. Hal ini dapat memengaruhi kepatuhan pasien terhadap rencana pengobatan khususnya dalam mengontrol kadar glukosa darah. Strategi koping yang efektif dapat mengurangi stres, memelihara hubungan social dan citra diri positif. Hal tersebut dapat membantu dalam mendukung kepatuhan terhadap manajemen penyakit dan dengan demikian dapat meningkatkan kualitas hidup. **Tujuan:** Penelitian ini bertujuan untuk mengetahui Hubungan Mekanisme Koping, Efikasi Diri, dan Kualitas Hidup pada pasien DM Tipe II. **Metode:** Penelitian ini menggunakan desain penelitian deskriptif korelasional dengan pendekatan cross-sectional. Sampel terdiri dari 80 partisipan. Analisis data dilakukan dengan menggunakan uji chi-square dan regresi logistik berganda untuk melihat hubungan antara mekanisme koping, efikasi diri, dan kualitas hidup pada pasien DM Tipe II. **Hasil:** Mayoritas responden berusia sekitar 45,85 tahun, sebagian besar laki-laki, sebagian besar bekerja, dan sebagian besar memiliki tingkat pendidikan yang rendah. Selain itu, sebagian besar dari mereka telah hidup dengan DM Tipe II selama lebih dari satu dekade dan umumnya memiliki kondisi kesehatan yang bersifat ringan. Mekanisme koping berhubungan dengan kualitas hidup pada pasien dengan DM Tipe II ( $OR = 3.000$ ,  $P = 0,03$ ). Mekanisme koping juga berhubungan dengan efikasi diri pada pasien dengan DM Tipe II ( $OR = 2.990$ ,  $P = 0.03$ ). Analisis multivariat menunjukkan bahwa mekanisme koping menjadi prediktor dari kualitas hidup ( $\beta = -0.31$ ,  $P = 0.03$ ). **Kesimpulan:** Mekanisme koping yang adaptif dapat meningkatkan efikasi diri, dan mekanisme koping yang adaptif dapat memiliki dampak positif pada kualitas hidup pasien DM Tipe II.

#### Abstract

**Background:** Diabetes Mellitus is among the four non-communicable diseases that have shown a notable increase in prevalence over the years. It is crucial to employ effective coping strategies to manage and prevent the various complications associated with this condition. This, in turn, significantly influences the adherence of diabetes mellitus patients to their treatment plans, ultimately resulting in the reduction of blood glucose levels. The use of efficient coping methods is essential for reducing stress, maintaining interpersonal relationships, and preserving a positive self-image, all of which contribute to supporting adherence to disease management and thus improving their quality of life. **Objective:** to identify the Relationship Between Coping Mechanisms, Self-Efficacy, and Quality of Life in patients with DM Type II. **Method:** This study utilized a descriptive correlational research design with a cross-sectional approach. The sample consisted of 80 participants. Data analysis was performed using chi-square tests and multiple logistic regression to examine the relationship between coping mechanisms, self-efficacy, and quality of life in DM Type II patients. **Results** The majority of respondents are typically around the age of 45.85 years, mostly male, employed for the most part, with a significant

*proportion having limited educational attainment. Additionally, a majority of them have been living with DM Type II for over a decade and generally have mild coexisting health condition. Coping mechanisms are associated with the quality of life in patients with Type II DM (OR = 3.000, P = 0.03). Coping mechanisms are also related to self-efficacy in patients with Type II DM (OR = 2.990, P = 0.03). Multivariate analysis indicates that coping mechanisms become predictors of quality of life ( $\beta = -0.31$ ,  $P = 0.03$ ). **Conclusion:** Adaptive coping mechanisms can enhance self-efficacy, and adaptive coping mechanisms can have a positive impact on the quality of life of DM Type II patients.*

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## INTRODUCTION

Diabetes Mellitus (DM) is one of the four non-communicable diseases, and its prevalence has been steadily increasing over time. Diabetes is a leading cause of mortality and morbidity worldwide (World Health Organization, 2018). In 2019, Diabetes was estimated to contribute to 11.3% of global deaths (Saeedi et al., 2020). This disease is also associated with being a primary cause of blindness, heart disease, kidney failure, and premature death (World Health Organization, 2016).

Globally, DM prevalence was 8% in 2011, expected to reach 10% by 2030 and possibly 700 million by 2045 (International Diabetic Federation, 2017). In Indonesia, DM ranks fifth, affecting 19.47 million (International Diabetic Federation 2021). Riskesdas (2018) reported DM prevalence rising from 6.9% in 2013 to 8.5% in 2018, estimating over 16 million cases in Indonesia.

Early management in patients with type II DM is crucial to prevent various complications. This can be achieved by regulating and maintaining a healthy lifestyle in terms of physical activity, diet, and medication. Therefore, individuals with type II DM have the responsibility for their treatment, where the core of disease management is self-management (Islamiasih, 2022). Self-management in type II DM involves knowledge, skills, and active participation by the individual, their family, and the community to

achieve successful DM management (Rahmawati et al., 2016).

Self-efficacy is identified as one of the most important factors in managing chronic disease (Saeedi, 2017). The self-efficacy of individuals with type II DM refers to how committed individuals are to following the treatment therapy and recommendations from healthcare professionals. Self-efficacy is significantly linked to an enhanced quality of life, suggesting that greater self-efficacy corresponds to an improved quality of life (Vitaliati et al., 2023). Self-efficacy is a factor influencing the quality of life in people with diabetes (Rahman & Sukmarini, 2017).

Coping mechanisms are the ways individuals adapt to stress, solve problems, adjust to changes, and respond to life-threatening situations by regulating specific external and internal needs that limit one's resources (Albai et al., 2017). Coping mechanisms encompass both adaptive and maladaptive strategies. Adaptive coping yields positive outcomes, including enhanced adherence to DM therapy and improved blood glucose control, enabling ongoing health monitoring (Iwan, 2018). Conversely, maladaptive coping reduces medication and dietary compliance among those with chronic illnesses (Safitri, 2021).

Quality of life refers to an individual's subjective assessment of their well-being, shaped by personal priorities and cultural

norms (World Health Organization, 2018). Many individuals diagnosed with DM tend to report a reduced quality of life, regardless of the presence of complications. This phenomenon can be largely ascribed to the complex impact of DM, which encompasses physical, psychological, and social dimensions. These individuals often confront the daily demands of disease management, which entail monitoring blood glucose levels, adhering to dietary restrictions, and administering medications or insulin. Additionally, they may grapple with emotional distress and feelings of social isolation, stemming from the challenges associated with coping with a chronic condition like diabetes.

Coping mechanisms and self-efficacy are critical for enhancing the quality of life in individuals with chronic diseases by improving disease management. Nevertheless, the relationship between self-efficacy, coping mechanisms, and quality of life remains inadequately understood, particularly among individuals with type II diabetes mellitus (DM). This research seeks to assess the association between coping mechanisms, self-efficacy, and the quality of life in type II DM patients.

## **METHODS**

### *Design and Sampling*

This study utilizes a descriptive correlational design with a cross-sectional approach. The inclusion criteria involved individuals diagnosed with Type II Diabetes Mellitus (DM) who were proficient in verbal communication in the Indonesian language, and had the ability to read and write effectively. Individuals with cognitive impairments were subject to exclusion criteria.

Sample size calculation was conducted using G-Power analysis with the following criteria: F-test;  $\alpha$  0.005; Power 0.80; and considering 6 predictors with an effect size of 0.20 for regression analysis.

Accounting for a 10% dropout rate, the final sample size was determined to be 80 respondents.

### *Instruments*

The research instruments utilized in this study included a demographic questionnaire containing information on respondents' names, age, gender, education, occupation, and duration of DM. Coping mechanisms were assessed using the Cope Inventory questionnaire, self-efficacy was measured using the DMSES (Diabetic Management Self-Efficacy Scale) questionnaire, and quality of life was evaluated using the DQOL (Diabetic Quality of Life) questionnaire. Comorbidities were assessed using the Charlson Comorbidity Index (CCI) questionnaire.

### *Data Collection*

The study began by submitting a research permit request to one of the Posbindu centers in West Jakarta. Upon obtaining permission, the researcher explained the purpose and objectives of the research as well as the process during the research implementation. The researcher clarified the research objectives to be conducted. After receiving an explanation from the researcher, the respondents were given the opportunity to provide their consent to participate in the research. If the respondents agreed to participate, the researcher would request them to complete the Cope Inventory, DMSES, DQOL, and CCI questionnaires. Respondents were given 15 - 20 minutes to complete all the questionnaire answers. The researcher checked the completeness of the answers after the respondents finished filling out the questionnaires.

### *Data Analysis*

Data analysis utilized the chi-square test and multiple logistic regression to explore the relationship between coping mechanisms, self-efficacy, and quality of

life in individuals with Type II Diabetes Mellitus (DM).

## RESULT

### *Respondent Characteristics, Coping Mechanisms, Self-Efficacy, and Quality of Life among patients with Type II DM*

Based on the research, it is explained that the mean age of the respondents is 45.85 years (SD = 7.08). The youngest respondent is 36 years old, while the oldest is 60 years old. Regarding gender,

the research shows that 51.2% are male, the majority are employed (53.8%), and most have low educational levels (elementary and junior high school, 51.2%). Additionally, 53.8% have been living with diabetes for 6-10 years, and 75% have mild comorbid conditions. The study found that the majority of the respondents have adaptive coping mechanisms (n = 44, 55%) and a good quality of life (n = 36, 45%). However, only 56.3% (n = 45) have good self-efficacy (Table 1).

*Table 1 Demographics, Respondent Characteristics, Coping Mechanisms, Self-Efficacy, and Quality of Life in Type II Diabetes Mellitus Patients (n=80).*

Variable	Category	n	%	Mean	SD	Min-Max	95% CI
Age	-	-	-	45.85	7.089	36-60	44.27-47.43
Gender	Male	41	51.2%	-	-	-	-
	Female	39	48.8%	-	-	-	-
Job	Yes	43	53.8%	-	-	-	-
	No	37	46.3%	-	-	-	-
Education	Low	41	51.2%	-	-	-	-
	High	39	48.8%	-	-	-	-
Duration of Illness (in Years)	1-5	37	46.3%	-	-	-	-
	≥ 6	43	53.8%	-	-	-	-
Comorbid	Mild	60	75%	-	-	-	-
	Moderate	20	25%	-	-	-	-
Coping Mechanism	Maladaptive	36	45%	-	-	-	-
	Adaptive	44	55%	-	-	-	-
Self-Efficacy	Low	35	43.8%	-	-	-	-
	High	45	56.3%	-	-	-	-
Quality of Life	Poor	44	55%	-	-	-	-
	Good	36	45%	-	-	-	-

Table 2 The Relationship Between Coping Mechanisms and Self-Efficacy in Patients with DM (n=80).

Variable	Category	Self-Efficacy		P Value	OR	95% CI
		High	Low			
		n (%)	n (%)			
Coping Mechanism	Adaptive	25 (56.8%)	19 (43.2%)	0.03	2.990	1.184-7.554
	Maladaptive	11 (30.6%)	25 (69.4%)			

Table 3 The Relationship Between Coping Mechanisms, Self-Efficacy, and Quality of Life in Patients with DM (n=80)

Variable	Category	Quality of Life		P Value	OR	95% CI
		Good	Poor			
		(n, %)	(n, %)			
Coping Mechanism	Adaptive	30, 68.2%	14, 31.8%	0.03	3.000	1.199-7.508
	Maladaptive	15, 41.7%	21, 58.3%			
Self-Efficacy	High	23 (63.9%)	13 (36.1%)	0.30	1.769	0.719-4.356
	Low	22 (50%)	22 (50%)			

Table 4 Logistic Regression of the Relationship Between Coping Mechanisms and Self-Efficacy with Quality of Life in Patients with DM (n=80)

Variabel	$\beta$	SE	Wald	Sig	OR	CI
Usia	-0.08	0.04	0.85	0.85	0.99	0.911-1.081
Jenis Kelamin						
laki-laki/perempuan	-0.08	0.49	0.02	0.86	0.92	0.347-2.440
Pekerjaan						
Bekerja/Tidak Bekerja	0.58	0.49	1.37	0.24	1.79	0.675-4.771
Pendidikan						
Rendah/Tinggi	-0.05	0.54	0.01	0.91	0.94	0.324-2.750
Lama Menderita DM						
1-5Tahun/6-10 Tahun	-0.02	0.51	0.00	0.96	0.98	0.359-2.674
Charlson Comorbidity Index						
Ringan/Berat	-0.74	0.65	1.30	0.25	0.47	0.133-1.700
Mekanisme Koping						
Maladaptif/Adaptif	-1.08	0.51	4.48	0.03	0.33	0.124-0.922
Efikasi Diri						
Buruk/Baik	-0.31	0.54	0.33	0.56	0.73	0.249-2.139

### ***Coping Mechanisms, Self-Efficacy, and Quality of Life in Type II DM Patients***

Based on the findings derived from Table 2, total of 25 participants exhibiting adaptive coping mechanisms demonstrated a favorable level of self-efficacy, constituting 56.8% of the sample. Conversely, 25 individuals characterized by maladaptive coping mechanisms exhibited diminished self-efficacy, amounting to 69.4%. This discrepancy yielded an odds ratio (OR) of 2.99, with a significance level of  $p = 0.03$ . These results indicate a noteworthy association between coping mechanisms and quality of life ( $OR = 3.00$ ,  $p = 0.03$ ). Specifically, among participants employing adaptive coping mechanisms, 30 individuals (68.2%) reported experiencing a high quality of life. In contrast, among those employing maladaptive coping mechanisms, 21 participants (58.3%) reported a lower quality of life. Conversely, the analysis revealed no substantial correlation between self-efficacy and quality of life ( $OR = 1.769$ ,  $p = 0.30$ ) (see Table 3)

Logistic regression was employed to model the relationship between coping mechanisms, self-efficacy, and quality of life. Age, gender, education, occupation, duration of diabetes, and comorbidities were included in the model as control variables. The results revealed a significant association between coping mechanisms and quality of life ( $OR = 0.33$ , 95%  $CI = 0.124-0.922$ ), after controlling for demographic and disease characteristics. No significant relationship was found between self-efficacy and quality of life, as shown in Table 5. This model explained 14% (Nagelkerke  $R^2$ ) of the variance in factors influencing the quality of life in Type II DM patients.

## **DISCUSSION**

### ***Characteristics of Respondents***

In this study, the majority of the respondents were in the pre-elderly phase, where individuals at this age experience a decline in bodily functions such as decreased sensitivity and insulin secretion disorders (Surjoseto, 2022). The research results indicate that the majority of Type II diabetes mellitus (DM)

patients are male. Sex hormones have a significant influence on energy metabolism, body composition, vascular function, and inflammatory response (Ciarambino et al., 2022). The prevalence of Type 2 diabetes is characterized by gender differences, where overall, the global prevalence of diabetes is higher in males, but the number of females with Type 2 diabetes is higher than males (Campesi et al, 2017). This is due to hormonal influences and glucose tolerance capacity. In males, the risk of DM is related to health behavior influences.

Although the majority of the respondents are in the pre-elderly phase, this age group is still considered productive, so most of them have jobs. Individuals with high activity levels may be at risk of having irregular lifestyles (Mamangkey, 2014). Changes in lifestyle, poor eating habits, and lack of physical activity can disrupt the body's metabolism.

In general, the respondents in this study have low levels of education. A person's level of education can influence their knowledge of the disease they suffer from. According to Setiyorini (2017), the higher a person's education, the more likely they are to seek and access health-related information, thereby increasing their knowledge. This, in turn, can lead to increased efforts to prevent the onset of diabetes, including reducing controllable risk factors, such as maintaining weight, improving dietary habits, and engaging in physical activity.

The research results indicate that the majority of respondents have been suffering from diabetes for more than 10 years. The duration of the disease can affect functional capacity, psychological capacity, health status, and the well-being of the patients (Wahyuni, 2014). Prolonged hyperglycemia (chronic) directly leads to physical complications in patients. Additionally, psychological adjustment is also influenced by the acceptance of the disease condition, which is influenced by culture and spirituality (Anindita, 2019). Patients who adapt well to their condition can

use their longer experience with diabetes to better learn self-care behaviors, making them more compliant with the necessary steps to manage their condition.

The majority of respondents also have one or two comorbid diseases, such as hypertension and high uric acid levels. The more diseases a person has, the more complex their treatment becomes, which can affect how they manage their illnesses (Ichsan, 2022). Additionally, individuals with DM and multiple comorbidities are at risk of experiencing more severe complications that can impact their quality of life (Umam, 2019).

### ***Overview of Coping Mechanisms in Type II Diabetes Mellitus Patients***

The majority of Type II diabetes mellitus (DM) patients in this study exhibit adaptive coping mechanisms. Coping refers to how individuals deal with problems or threats that arise, and individual coping consists of three components: stressors, cognitive assessments, and coping mechanisms (Burns et al., 2016). Adaptive coping mechanisms that can be employed by DM patients include self-control and positive assessments. On the other hand, maladaptive coping mechanisms involve avoiding problems and seeking support from negative sources. According to Asafitri (2019), patients with adaptive coping view their illness as a test from God, pray for healing, and try to accept what they are facing. Meanwhile, according to Lestari (2015), several factors influence coping mechanisms, including education. A person's level of education is associated with increased cognitive complexity. Studies have shown that DM patients with adaptive coping mechanisms are linked to improved blood glucose management and dietary behavior, whereas DM patients with maladaptive coping mechanisms are associated with higher depressive symptoms (Sheth et al., 2023).

### ***Overview of Self-Efficacy in Type II Diabetes Mellitus Patients***

The majority of Type II diabetes mellitus (DM) patients in this study exhibit good self-

efficacy. Self-efficacy in DM patients refers to an individual's belief in their ability to manage and control their disease condition, such as adhering to dietary plans, monitoring blood sugar levels, and following medication therapy programs. Previous research has shown that many DM patients with poor self-efficacy find it challenging to achieve specific milestones in disease management, such as engaging in recommended physical activities (Anindita, 2019). Based on Bandura's self-efficacy theory (1997), self-efficacy is developed through personal experiences, social observations, and verbal persuasion.

In this study, patients have been diagnosed with DM for more than 10 years, which can influence their experience in managing the disease. Self-efficacy positively contributes to DM patients in reducing the negative impact of psychological distress and depressive symptoms (Gao et al., 2022). High levels of self-efficacy greatly affect self-care behaviors in DM patients. Research results indicate that high self-efficacy directly enhances diabetes self-management, medication adherence, metabolic outcomes, and health-related quality of life (HRQoL) (Fisher et al., 2008). Peer support, whether in the form of peer groups or support from the environment, is a factor that can enhance self-efficacy and self-management in DM patients (Liang et al., 2021). Thus, high self-efficacy has a positive impact on self-management, ultimately leading to better blood sugar control in Type II DM patients (Lin et al., 2017).

### ***Overview of Quality of Life in Type II Diabetes Mellitus Patients***

The research results indicate that the majority of Type II diabetes mellitus (DM) patients have poor quality of life. The quality of life in DM patients is influenced by physical changes and the disease prognosis. DM patients with poor quality of life usually report feelings of dissatisfaction with physical changes and lifestyle adjustments (Arifin, 2020). In this study, patients expressed dissatisfaction with the quality of sleep, the

disruption of social needs due to the disease, and the limitations in daily activities due to the presence of the disease, representing how patients perceive their quality of life.

In addition to physical conditions, social aspects have an impact on the decline in the quality of life of DM patients. The quality of life of Type 2 DM patients can be improved by regularly monitoring glucose levels 3 to 5 times a week, which increases patient awareness of self-care and quality of life (Johnston et al., 2022). Besides regular glucose monitoring, other research shows that DM patients can improve their quality of life by paying attention to the quality of their diet, consuming the right calories, and engaging in regular exercise (Garg & Duggal, 2022). The results of this study show poor quality of life, but factors such as routine blood glucose checks and healthy lifestyle habits were not evaluated, which could be considered for further research.

### ***The Relationship between Coping Mechanisms and Self-Efficacy***

The research results indicate that there is a relationship between coping mechanisms and self-efficacy. This finding is supported by a study by Venizelia (2020), which concludes that individuals who can control their self-efficacy effectively and use adaptive coping mechanisms can address the problems they face, even if they are uncertain about the treatment's success, as they can discuss it with someone else. This data shows a significant influence, as seen in Firmansyah's study (2019).

The success of using adaptive coping mechanisms in individuals with DM will have an impact on compliance with self-care in DM patients, ultimately leading to a reduction in blood glucose levels in DM patients. Coping mechanisms will influence the self-efficacy of DM patients because the components of coping mechanisms include the patient's cognitive assessment of the disease and the stressors that arise from it. Therefore, patients with effective coping mechanisms are closely



related to self-efficacy because self-efficacy also depends on the patient's cognitive assessment of the disease's stressors.

### ***The Relationship between Coping Mechanisms and Quality of Life***

A connection between coping strategies and quality of life is suggested by the research findings. Patients with DM who have effective coping mechanisms can deal with the problems they face during their disease journey, which can affect their overall quality of life (Asafitri, 2019). Patients with coping mechanisms focused on problem-solving have a better quality of life compared to patients with coping mechanisms focused on emotions. Coping mechanisms focused on emotions are highly associated with denial or avoidance of problems, not accepting existing problems, and the use of medication that reduces quality of life. In contrast, coping mechanisms focused on problem-solving involve planning, problem-solving, self-control, seeking information, and cognitive reassessment of previous judgments to improve, so problem-focused coping mechanisms can enhance quality of life (Eldred, 2011; Sheth et al., 2023).

Maladaptive coping mechanisms such as self-blame, avoidance of problems, and negative self-stigma can lead to increased rates of depression in individuals with chronic illnesses, resulting in a decreased quality of life (Deng et al., 2019). The relationship between coping mechanisms and quality of life varies in various studies, possibly due to differences in methods and measurement tools (Rochmah, 2019). There are various factors that affect the quality of life of DM patients, in addition to coping mechanisms, such as stress, anxiety, depression, dietary compliance, physical activity, blood sugar control, and fatigue. A comprehensive assessment may be needed to determine the aspects that can influence the quality of life of DM patients.

### ***The Relationship Between Self-Efficacy and Quality of Life***

The results of this study indicate that there is

no relationship between self-efficacy and quality of life. This may be due to the adaptive coping mechanisms employed by the majority of diabetes mellitus patients in this population. Adaptive coping mechanisms can accommodate the effects of the disease condition. Effective coping can directly influence the health-related behaviors of patients, such as maintaining a diet and monitoring blood sugar levels to engage in self-care behaviors independently (Manuntung, 2020).

### ***Coping Mechanisms and Self-Efficacy in relation to Quality of Life***

The relationship between coping mechanisms and self-efficacy with the quality of life was assessed through multivariate analysis. The results indicate that coping mechanisms play a significant role in influencing the quality of life. This finding is consistent with previous research conducted by Sofiyani (2021), which suggests that individuals who employ adaptive coping mechanisms tend to focus on problem-solving. They approach challenges with a logical mindset and make positive efforts to resolve issues. This approach becomes more prominent when they encounter stressful situations. In such cases, the ability to effectively cope with stress and maintain a positive outlook appears to enhance their overall quality of life.

### ***Conclusion & Recommendation***

This study focused on individuals with Type II Diabetes Mellitus (DM) and revealed several key findings. The majority of the respondents were approximately 45.85 years old, with a predominant male presence. Many were employed, although they had lower levels of education. A significant portion had been managing DM for 6-10 years, and most had mild comorbid conditions. Interestingly, the study noted that while adaptive coping mechanisms were quite common among this group, self-efficacy levels were only moderate.

A significant finding emphasized the connection between coping mechanisms and self-efficacy, highlighting the need to

enhance adaptive coping techniques for Type II DM individuals. This research also underscored the impact of coping mechanisms on their quality of life. Those with adaptive coping reported higher quality of life, while those with maladaptive coping methods had lower quality of life.

In light of these findings, it is recommended that healthcare providers and professionals focus on promoting adaptive coping strategies and boosting self-efficacy among Type II DM patients.

Additionally, providing comprehensive care and conducting regular assessments of their quality of life can assist in tailoring interventions more effectively to improve the overall well-being of these individuals.

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