Why Daily Tasks Feel Harder: Exploring the Relationship Between Depression, Hopelessness, and Activities of Daily Living

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Abstract

Depressive symptoms can have significant impact on the daily life of young adults. Besides academics and social life, one aspect that is often overlooked in this population is the perceived effort required to perform activities of daily living (ADL). The ability to carry out these ADL is essential for independence and well-being during the transition into adulthood. This study explored the relationship between depressive symptoms and perceived effort in ADL tasks, mediated by hopelessness in young adults between 18 and 29 years old. This was done by a cross-sectional design using a questionnaire including Beck's depression inventory, Beck's hopelessness scale, and the newly constructed ADL effort scale, which consisted of four subscales: basic ADL, household tasks, meal preparation, and social and engagement tasks. The results show that there was a significant direct relationship between the three main variables of depressive symptoms, hopelessness, and ADL effort. Although the overall mediating role of hopelessness was not statistically significant in general ADL tasks, it was found to be significant in the subscale household tasks. These findings suggest that underlying psychological factors such as hopelessness can play a role in the perceived burdensome of ADL tasks among young adults experiencing depressive symptoms. This study can provide a basis for future research and interventions on mood and psychological mechanisms, as well as their influence on daily functioning in young adults.

Introduction

In recent years, depressive symptoms have been an increasing problem among young adults. According to the Centraal Bureau voor de Statistiek (CBS, 2024), the percentage of individuals aged 18 to 25 reporting depressive symptoms rose from 41.1% in 2019 to 53.1% in 2023, making this age group the most affected. These symptoms can interfere with their academic performance, work, and social life (Adler et al., 2006; Kupferberg et al., 2016; Sinval et al., 2024). However, while the effects of depressive symptoms on these domains are well known, the influence of these on daily functioning and the ability to perform everyday household tasks is understudied.

Activities of Daily Living (ADL) such as getting out of bed, showering, preparing a meal, and cleaning the house are essential for independent living. This is especially relevant for young adults, who are often learning to manage these responsibilities independently for the first time. Difficulties in developing and maintaining these routines can negatively affect autonomy, independence, and psychological well-being (Millán-Calenti et al., 2009). Depressive symptoms may increase this risk by making ADL tasks feel more effortful. The stereotypical image of a depressed person staying in bed, surrounded by a cluttered room, raises the question of the extent to which these symptoms are influencing the perceived difficulty in managing these ADL.

Despite the relevance of this topic, little is known about the effects of mental health on daily functioning. To address this gap, this study aims to examine the relationship between depressive symptoms and ADL in young adults, highlighting how mental health struggles impact daily routines.

Definition and importance of ADL for young adults

The ability to maintain ADL is essential for young adults as they transition towards independent functioning. First, it is necessary to define ADL. ADL are described as the

essential tasks that individuals perform daily to maintain personal care and independence (Mlinac & Feng, 2016). These tasks are categorised into two groups: basic activities of daily living (BADL), which consist of care activities like getting out of bed, toileting, washing, and dressing, and instrumental activities of daily living (IADL), which involve more complex tasks such as grocery shopping, meal preparation, public transport, and household chores as well as social activities (Liu et al., 2023; Mlinac & Feng, 2016; Neo et al., 2017).

To understand the relevance of maintaining ADL for young adults, it is necessary to consider the developmental context in which these skills are required. Emerging adulthood, originally defined by Arnett (2000) as the period between 18 and 25, has since been extended towards 29, as many young adults now take longer to reach full stability in job employment and relationships due to societal and cultural changes (Arnett et al., 2014). Arnett (2000) described emerging adulthood as a life stage defined by identity exploration, instability, self-focus, feeling in between, and new possibilities. During this life stage, young adults are figuring out who they are as individuals and begin to manage responsibilities such as studying, starting their first job, and living independently for the first time. This prolonged instability also has consequences for mental well-being. Many young adults in this life stage experience increased levels of anxiety, stress, and depressive symptoms, partly due to the uncertainty and pressure of navigating early adulthood (Arnett et al., 2014).

In addition to navigating the challenges of emerging adulthood, young adults are also faced with taking care of daily tasks without parental support. Difficulty in managing these ADL can negatively impact mental well-being, leading to increased dependence and a reduced quality of life (Millán-Calenti et al., 2009). Young adults who experience difficulties in performing ADL report feelings of hopelessness and frustration. These difficulties impact their ability to perform well in school, secure employment, and participate in social activities, ultimately resulting in a decreased quality of life (Rasalingam et al., 2023). Therefore, the

ability to perform ADL is essential during early adulthood, as it lays the foundation for independence, supports quality of life, and enables successful participation in education, work, and social life.

Relationship between depression and ADL

The role of maintaining ADL is crucial for independent living in emerging adulthood. However, depressive symptoms can lead to difficulties in daily functioning, highlighting the importance of exploring this relationship. Several studies have examined how depressive symptoms relate to difficulties in performing ADL, particularly in elderly populations. Depression is identified as a significant risk factor for developing and maintaining ADL impairment in the elderly (Dunlop et al., 2005; Lenze et al., 2005). In addition, ADL impairment has been found to increase depressive symptoms among older adults (Liu et al., 2023). A longitudinal study by Wang et al. (2024) showed this bidirectional relationship between depression and ADL in the elderly, in which both decline in ADL and decreasing mental health could reinforce each other over time. Similarly, Kondo et al. (2007) found this cycle of decline and that depressive symptoms were more strongly associated with declines in IADL than in BADL. These studies identified a lack of energy, apathy, social inactivity, cognitive impairment, and burden of disease as explanations for this link between depressive symptoms and ADL impairment (Kondo et al., 2007; Lenze et al., 2005; Liu et al., 2023).

Given that young adults are generally physically healthy and cognitively intact, the mechanisms underlying ADL difficulties in the context of depression may differ substantially from those observed in older adults. While symptoms such as apathy and low energy are observed across age groups, in young adults, they are more likely to stem from psychological factors rather than physical or cognitive impairment. Apathy and lack of energy may be behavioural symptoms of deeper cognitive processes such as hopelessness, which is the belief that negative outcomes are inevitable, and one’s actions are powerless (Abramson et al. 1989).

Individuals who experience hopelessness exhibit retarded initiation of voluntary responses, meaning that they delay or avoid these actions when capable (Abramson et al., 1978). Hopelessness may be the underlying cognitive mechanism that drives this anticipated failure and reduced engagement in daily tasks (Au et al., 2009). Individuals experiencing hopelessness perceive their actions as ineffective, which can make everyday tasks such as cooking or cleaning feel overwhelming or pointless, regardless of actual ability. Hopelessness thus offers a possible explanation for the decline in ADL engagement among young adults with depressive symptoms, causing a cognitive filter through which ADL is perceived as highly demanding and burdensome.

Underlying theoretical frameworks

To understand how the cognitive filter of hopelessness affects the ability to perform in ADL, it is important to understand the different dimensions of ADL functioning. According to the framework of Glass (1998), ADL functioning can be understood through different "tenses": the hypothetical tense, referring to what individuals believe they are capable of, and the enacted tense, referring to what they do. As hopelessness serves as a cognitive filter, it can affect how individuals interpret their capability to carry out ADL tasks. Supporting this, Nicholas et al. (2020) found that individual's perceived functioning was more strongly related to activity participation than their actual cognitive or communicative abilities. This highlights the significant role of subjective experience in the engagement in ADL. This supports a deeper understanding of how depressive symptoms and hopelessness affect the perceived burden of ADL in young adults.

To specifically understand how this subjective experience is affected, it is important to understand the underlying cognitive theories behind hopelessness, such as the learned helplessness theory (Seligman, 1975) and its extension, the hopelessness theory of depression (Abramson et al., 1989). These theories explain how feelings of helplessness contribute to a

lack of motivation, and passive behaviour increasing depressive symptoms. Learned helplessness is the phenomenon that a sequence of negative events, causes an individual to believe they have no control over their circumstances (Seligman, 1975). This learned helplessness leads to a reduction in motivation, which causes individuals to stop putting in effort (Abramson et al., 1978). In addition, individuals who experience learned helplessness have difficulty learning from their successes. Even if an individual completes a task successfully, they still believe they won't be able to do it again in the future (Seligman, 1975).

Abramson et al. (1989) redefined and extended learned helplessness by incorporating cognitive factors which became the hopelessness theory. According to this theory, hopelessness is defined as a belief that negative outcomes are inevitable and that one is powerless to change the future. Abramson refined Seligman's theory by emphasising cognitive interpretations of events rather than just the experience of uncontrollability. The difference is that hopelessness does not arise just from past helplessness, but because of how an individual defines those negative experiences. Individuals who develop hopelessness tend to have a negative attribution style, in which they explain negative events as stable, global, and internal. This negative attribution style leads to hopelessness. Hopelessness can initiate a vicious circle starting with an individual expecting that their actions will be ineffective resulting in decreased motivation, emotional distress and passivity. This will result to failure, reinforcing the belief of hopelessness increasing overall depressive symptoms (Hong et al., 2006).

This process is further supported by multiple recent studies showing that this negative attribution style is significantly associated with increased depressive symptoms (Hong et al., 2006; Calvete et al., 2013; Abela et al., 2012). The vicious cycle of hopelessness is observed in multiple studies in which individuals with this negative attribution style were associated with lifetime vulnerability to depression impacting their motivation, functioning and

emotional well-being (Alloy et al., 2012; Haeffel et al., 2005). These findings can explain how negative attributions can elevate feelings of hopelessness resulting in increased depressive symptoms. This increased hopelessness can result in reduced effort, passivity, and withdrawal.

The vicious cycle of hopelessness can offer insight into the process of increased perceived effort in ADL. Individuals experiencing depressive symptoms often show an increased sense of hopelessness, shaped by a negative attribution style affecting their perceived ADL performance. Individuals with this negative attribution style will experience ADL as more effortful, anticipate failure and lack the energy to perform these tasks. As a result, activities of daily living (ADL) may feel even more demanding due to the cognitive and emotional burden forced by hopelessness. This suggests that hopelessness may mediate the relationship between depressive symptoms and perceived ADL effort by increasing failure anticipation, resulting in task avoidance.

The current study

Building on previous studies and the theoretical framework this study aims to examine how depressive symptoms and hopelessness influence perceived effort in ADL among young adults between 18 and 29. The chosen age range of 18-29 represents the life stage of emerging adulthood as defined by Arnett (2014). This life stage is characterised by instability and the transition to independence, in which mental health challenges, such as depressive symptoms, are highly prevalent. This study focuses on a general population of young adults, varying from individuals with mild to moderate depressive symptoms, rather than a clinically diagnosed sample. This allows for the exploration of how symptom severity impacts the perceived effort associated with ADL in a non-clinical but psychologically vulnerable group. To achieve this, the study aims to investigate the direct relationship between these three variables and additionally, the mediating role of hopelessness on the relationship between

depressive symptoms and perceived effort in ADL. This overarching model is shown in Figure 1. Based on this model the following research question is formulated: What is the relationship between the severity of depressive symptoms, hopelessness, and the perceived effort in activities of daily living (ADL) in young adults aged between 18 and 29? Based on the previous literature and theoretical framework the following four hypotheses are stated.

H1: Higher levels of depressive symptoms will be associated with a higher level of perceived effort in engaging in ADL among young adults aged between 18 and 29.

H2: Higher depressive symptoms are related to higher levels of hopelessness in young adults aged between 18 and 29.

H3: Higher levels of hopelessness are related to a higher level of perceived effort in engaging in ADL among young adults aged between 18 and 29.

H4: Higher levels of depressive symptoms would lead to higher levels of hopelessness, which in return will result in higher perceived effort in ADL in young adults aged between 18 and 29.

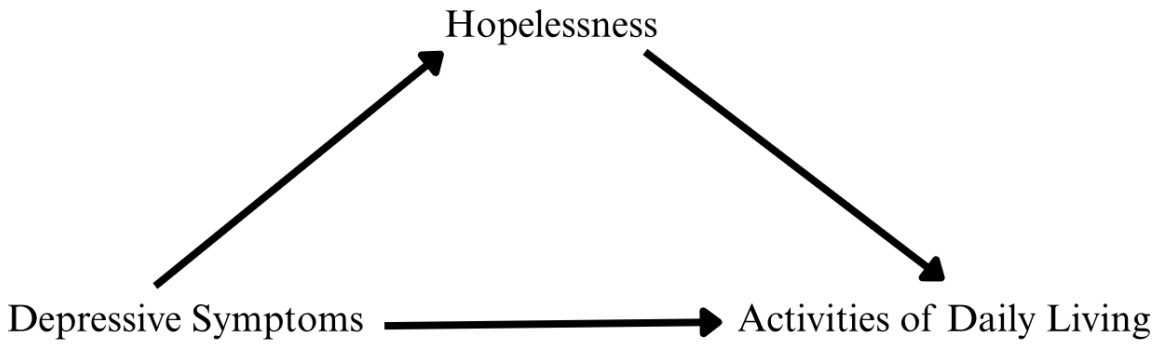


Figure 1

Conceptual model illustrating the direct and mediating relationship between depressive symptoms, hopelessness, and perceived effort in ADL.

Methods

Design

This study followed a quantitative cross-sectional design. This study consisted of an online questionnaire using Qualtrics. The primary aim of the study was to investigate the relationship between depressive symptoms, hopelessness, and perceived effort in daily functioning (ADL). Data were collected at a single time point, allowing for correlational and mediation analyses between the variables.

Participants and recruitment

This study included a sample of 115 participants recruited by convenience sampling, a non-probability sampling method that involves selecting participants who are easily accessible to the researcher (Etikan et al., 2016). This method was chosen because of its accessibility, feasibility due to constraints of time and resources, and the relevance of young adults as target population. Recruitment of the participants was done by Sona Systems of the University of Twente, and social media platforms, specifically WhatsApp and Instagram. All young adults participated voluntarily, some of whom were students of the BMS department of the University of Twente and gained course credit in return for their participation. All participants were informed about the nature and aim of the study prior to participation. The study was introduced as research investigating the relationship between mood and daily functioning in young adults. Participants were explicitly informed that the questionnaire would include items on depressive symptoms, hopelessness, and perceived effort in daily activities. The consent form also included mental health resources to support participants in case of emotional distress. Participants were free to withdraw from the study at any point during the survey without providing a reason. Participants were required to be between 18 and 29 years old and sufficiently proficient in English. Additionally, participants were excluded if

they experienced any serious mental illness. Based on this eligibility criterion, 44 participants were excluded from the study. The final sample consisted of 52 women and 19 men and no non-binary participants, aged between 18 and 29 years, with a mean age of 21.46 (SD = 2.75). A total of 87.3% of the participants were Dutch, 8.5% of the participants were German, and 4.2% of the participants belonged to another nationality. Lastly, 32.4% of the participants had a high school degree, 52.1% had a bachelor's degree, and 15.5% had a master's degree. This research was approved by the BMS Ethics Committee of the University of Twente (approval number: 250711), and all participants signed an informed consent form prior to participation in the study.

Materials

The study used the online software Qualtrics for constructing the questionnaire. The questionnaire consisted of an informed consent form, demographic questions, and three scales measuring depressive symptoms, hopelessness, and ADL effort. To measure these the scales BDI, BHS, and ADL effort scale were used which contained in total of 61 items.

The first scale that was used to measure the severity of depressive symptoms was Beck's Depression Inventory (BDI; see Appendix B; Beck et al., 1961). This scale consisted of 21 items regarding a symptom or attitude related to depression (e.g., sadness, hopelessness, fatigue). Each item consisted of four statements rated from 0-3 on severity. Participants choose the statement that best fits their experience. Higher total scores indicate higher severity of depressive symptoms. Internal consistency in the present sample was excellent, with a Cronbach's alpha of .92 (standardized $\alpha = .93$). Item-total correlations ranged from .44 to .71, and the average inter-item correlation was .37. These results are in line with previous studies stating an internal consistency between .73 to .92 with a mean of .86 (Beck et al., 1988; Wang & Gorenstein, 2013).

The second scale used to measure hopelessness was Beck's Hopelessness Scale (BHS; see Appendix C; Beck et al., 1974). This scale contained 20 items regarding statements regarding negative expectations of the future. Each item is answered as true or false and reflects pessimism, lack of motivation, or expectations of failure. One point was assigned for each response indicating hopelessness, higher total scores on the BHS indicate a higher hopelessness. Previous research has demonstrated strong internal consistency for the BHS, with Cronbach's alpha values ranging from .81 to .93 (Beck et al., 1974; Bottaro & Faraci, 2024; Kocalevent et al., 2016). In the current sample, the BHS also showed good internal consistency (Cronbach's $\alpha = .81$; standardized $\alpha = .84$). Item-total correlations varied between –.01 and .67, with an average inter-item correlation of .21.

The last scale that was used is the ADL Effort scale (see Appendix D). This scale was newly constructed and based on the Lawton Instrumental Activities of Daily Living Scale and the Spoon theory (Lawton & Brody, 1969; Christine, 2025). The scale combined items from these existing ADL-related scales and theories and categorized them into four subscales: Basic ADL, Household Tasks, Meal Preparation, and Social Engagement. After the scale was constructed, a cognitive pre-test was conducted to identify any problems with the scale, and lastly, the scale was checked by the supervisor of the University of Twente. The final scale included 20 items. For each item participants needed to rate how much effort the activity took them and rate this on a scale of 0 (no effort) to 4 (extremely difficult). Higher total scores were related to higher effort to maintain ADL. The scale demonstrated excellent internal consistency, with a Cronbach's alpha of .93 (standardized $\alpha = .93$). Item-total correlations ranged from .43 to .72, and the average inter-item correlation was .38. Reliability remained high if any item was removed (α range = .92–.93), and no items substantially improved overall reliability if deleted. The interval was also assessed for the four subscales. Reliability

was acceptable for the Basic ADL (α = 0.76) and Social & Engagement tasks (α = 0.77), and good to excellent for Household Tasks (α = 0.88) and Meal Preparation (α = 0.89).

Procedure

Before the study participants filled in an online informed consent form (see Appendix A). After providing informed consent, participants completed demographic questions (age, gender, education, nationality). These were followed by three psychological scales in a fixed order: the Beck Depression Inventory (BDI), the Beck Hopelessness Scale (BHS), and the ADL Effort Scale. The questionnaire took approximately 10–15 minutes to complete. At the end of the study, participants were debriefed and provided with mental health resources in case of distress. All procedures were approved by the BMS Ethics Committee, and participation was voluntary. Psychology students received course credit after participation, while others participated without compensation.

Data-analysis

After the data collection through Qualtrics, the data was further sorted and cleaned in Excel. Participants were excluded from the dataset if they did not match the eligibility criteria or had not finished the questionnaire. After applying these criteria, the final dataset consisted of 71 participants. Regarding the data analysis, all analyses were done in R. Firstly, descriptive statistics were performed to give a general impression of the dataset.

Next, to examine the relationship between the three main variables correlation and linear regression analyses were performed. Therefore, the linear model assumptions were evaluated for three models (Model 1: BDI → ADL, Model 2: BDI → BHS, Model 3: BHS → ADL. These conditions are linearity, independence, equal variance, and normality. Linearity and independence assumptions were met in all models based on scatterplots, residual plots, ACF plots, and Durbin-Watson statistics. Equal variance was confirmed for Models 1 and 3 but violated in Model 2 as indicated by residual plots and the Breusch-Pagan test. Residuals in

all models were approximately normally distributed, supported by Q-Q plots and Shapiro-Wilk tests.

To test whether hopelessness mediates the relationship between depressive symptoms and ADL functioning, a causal mediation analysis was conducted. Three regression models were estimated: one for the predictor–mediator relationship (BDI → BHS), one for the total effect (BDI → ADL), and one for the mediator and predictor simultaneously predicting the outcome (BDI + BHS → ADL). Nonparametric bootstrapping with 1,000 simulations was used to estimate the average causal mediation effect (ACME), average direct effect (ADE), and total effect, along with 95% confidence intervals. In addition to total ADL scores, mediation models were also conducted separately for four ADL subdomains: Basic ADL, Household Tasks, Meal Preparation, and Social Engagement. A significance level of $\alpha = .05$ was used for all analyses.

Results

In this section, the findings of the descriptive analyses, correlation analysis, linear regression models, and mediation analyses are shown. First, descriptive statistics and correlations between the three main variables of depressive symptoms, hopelessness, and ADL effort are reported. Furthermore, the descriptive statistics and the correlations of the subscales of the ADL scale are presented. Next, regression models are used to examine the predictive relationships among the three main variables. Finally, a causal mediation analysis explores whether hopelessness mediates the relationship between depressive symptoms and ADL effort, including its four subdomains.

Descriptive statistics

In Table 1 the descriptive statistics of the three variables of depressive symptoms, hopelessness, and ADL effort, and the ADL subscales are described. These scores are the

total scores on the BDI, BHS, and ADL effort scale. A higher concentration of low scores was observed in all three variables, indicating that participants generally experience lower depressive symptoms, and hopelessness, and needed less effort to perform ADL. Furthermore, all the subdomains were positively skewed, indicating a higher concentration of low scores than high scores. Meal preparation showed the strongest right skewness.

A Spearman's correlation analysis was conducted to examine the relationship between depressive symptoms, hopelessness, total ADL effort, and the ADL subscales as shown in Table 2. Spearman's correlation analysis was conducted as the assumption of normality was violated. The correlation results indicated a significant positive relationship for all three main variables. The strongest positive relationship was between BDI and BHS. Furthermore, correlations among the ADL subscales were examined. Social and engagement tasks showed the strongest relationship with depressive symptoms and hopelessness, whereas household tasks showed the weakest correlation. Among the subscales, meal preparation and social and engagement tasks were most strongly correlated with basic ADL. In contrast, the weakest inter-subscale correlations were found between household tasks and basic ADL, and between household tasks and social and engagement tasks.

Table 1

Variable	N	M	SD	Range
Depressive symptoms (BDI)	71	9.72	8.70	0–36
Hopelessness (BHS)	71	4.48	3.56	0–17
ADL effort (ADL)	71	22.00	12.92	1–71

Basic ADL	71	4.79	3.54	0–18
Household Tasks	71	6.60	4.19	0–20
Meal Preparation	71	4.83	3.95	0–16
Social and engagement tasks	71	5.78	3.65	0–17

The descriptive statistics of depressive symptoms, hopelessness, total ADL effort, and ADL subscales

Note. N = number of participants, M = mean, SD = Standard Deviation

Table 2

Spearman correlations among depressive symptoms, hopelessness, total ADL effort, and ADL subscales

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Depressive symptoms	—						
2. Hopelessness	.64***	—					
3. ADL effort	.58***	.50***	—				
4. Basic ADL	.53***	.46***	.82***	—			
5. Household Tasks	.30*	.37**	.77***	.49***	—		
6. Meal Preparation	.52***	.44***	.85***	.64***	.55***	—	

7. Social and engagement tasks	.59***	.47***	.79***	.66***	.48***	.58***	—

Note. *p < .05, ** p <.01, *** p <.001

Linear regression

In the linear regression analysis, the relationship between the variables of depressive symptoms (BDI), hopelessness (BHS), and ADL effort (ADL) was examined. The outcomes of the analysis are described in Table 3. Model 1 described the relationship between depressive symptoms and ADL effort. The results showed that a higher level of depressive symptoms is related to increased perceived effort in ADL. This model was found to be significant and explained approximately 47% of the variance in ADL effort.

Model 2 described the relationship between depressive symptoms and hopelessness. The results showed that a higher level of depressive symptoms is related to higher levels of hopelessness. This model was found to be significant and explained approximately 59% of the variance in hopelessness.

Lastly, model 3 described the relationship between hopelessness and ADL effort. The results showed that a higher level of hopelessness is related to increased effort in ADL. This model was found to be significant and explained approximately 41% of the variance in ADL effort.

Table 3

Regression analysis between the variables depressive symptoms (BDI), hopelessness (BHS), and ADL effort (ADL)

Predictor → Outcome	Intercept (SE)	Slope (SE)	F(df)	p-value	R^2
BDI → ADL	12.14 (1.70)	1.01 (0.13)	60.46 (1, 69)	< .001	.47
BDI → BHS	1.43 (0.41)	0.31 (0.03)	99.09 (1, 69)	< .001	.59
BHS → ADL	11.61 (1.92)	2.32 (0.34)	47.60 (1, 69)	< .001	.41

Note. SE = Standard Error, F = F-statistic, R^2 = proportion explained variance, *p < .05, ** p <.01, *** p <.001

Mediation analysis

A causal mediation analysis was conducted to examine whether hopelessness mediated the relationship between depressive symptoms and ADL effort. Besides the mediating effect of depression on the total score on ADL, the four subdomains of the ADL scale were also examined. The mediation model of the effect of depression on the total ADL score mediated by hopelessness is expressed in Figure 2. The total effect of depressive symptoms on ADL effort was significant, β = 1.01, 95% CI [0.74, 1.31], p < .001. The direct effect remained significant when controlling for hopelessness, β = 0.70, 95% CI [0.30, 1.07], p < .001. The indirect effect via hopelessness (ACME) was β = 0.32, 95% CI [−0.02, 0.71], with a p-value of .068, indicating a non-significant trend towards mediation. Approximately 31% of the total effect was accounted for by the mediator. The mediation analysis of the subdomains is expressed in Table 4. Among the ADL subdomains, only Household Tasks showed a statistically significant indirect effect (ACME) of β = 0.14, p < .05, with 66% of the total effect mediated by hopelessness. The mediation model of the effect of depression on household tasks mediated by hopelessness is expressed in Figure 3. For the subdomains of Basic ADL, Meal Preparation, and Social Engagement, the mediation effects were not significant. These subdomains were more directly influenced by depressive symptoms.

Table 4

Effects of Depressive Symptoms on Subdomains ADL Mediated by Hopelessness

Subdomain	**Total Effect (β [95% CI])**	**Direct Effect (β [95% CI])**	**Indirect Effect (β [95% CI])**	**p (Indirect)**	**% Mediated**
Basic ADL	0.24 [0.15, 0.35]***	0.16 [0.03, 0.28]**	0.08 [−0.02, 0.20]	.13	33%
Household Tasks	0.21 [0.10, 0.32]**	0.07 [−0.08, 0.21]	0.14 [0.01, 0.28]*	<.05	66%
Meal Preparation	0.30 [0.21, 0.38]***	0.25 [0.01, 0.38]***	0.05 [−0.04, 0.16]	.33	16%
Social and Engagement Tasks	0.27 [0.19, 0.35]***	0.22 [0.10, 0.34]***	0.05 [−0.04, 0.15]	.31	19%

Note. CI = Confidence Interval, β = standardized regressive coefficient, *p < .05, ** p <.01, *** p <.001.

Figure 2

Mediation model showing the relationship between depressive symptoms (X), hopelessness (M), and total ADL effort (Y).

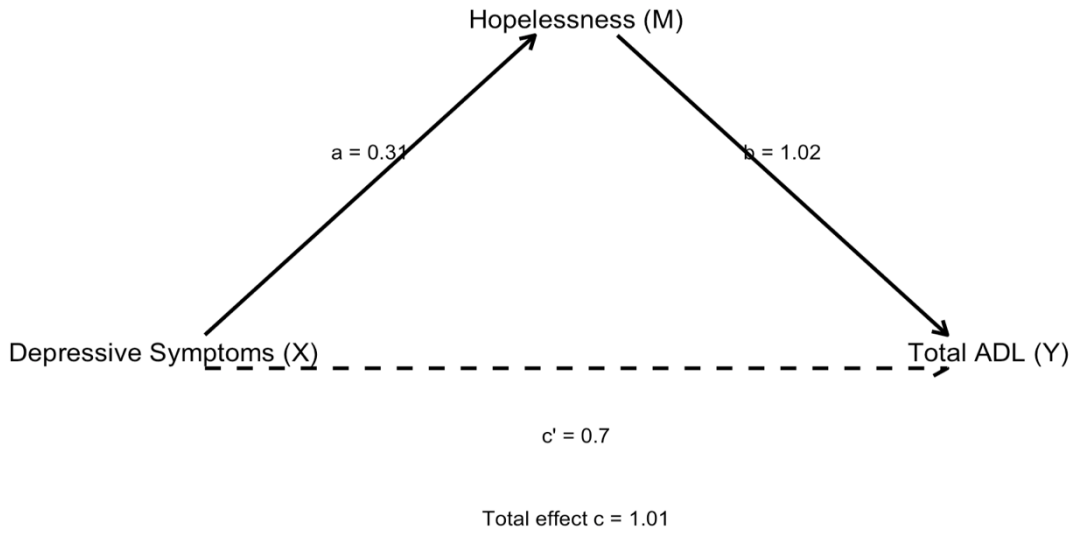
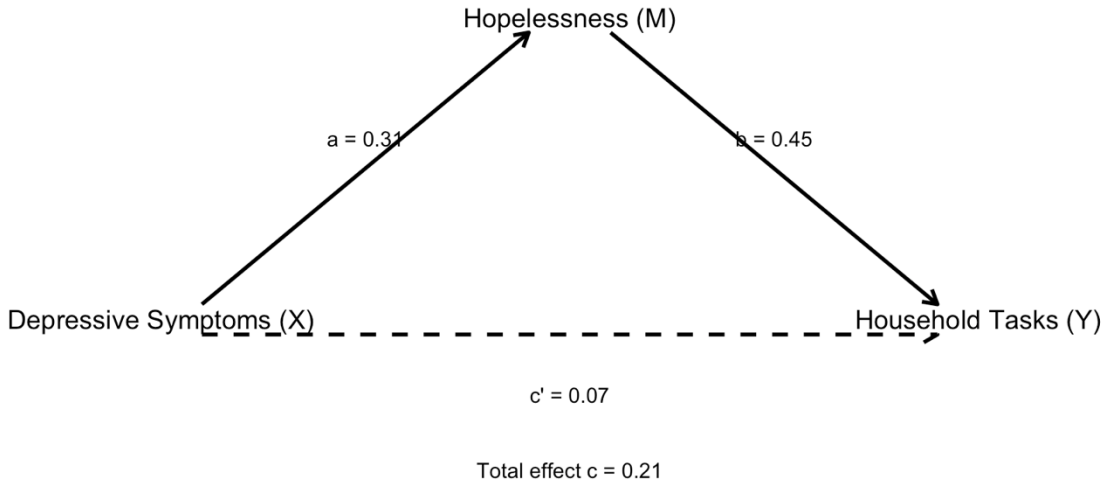


Figure 3

Mediation model showing the relationship between depressive symptoms (X), hopelessness (M), and total Household Tasks (Y).



Discussion

In this study, the relationship between the severity of depressive symptoms, hopelessness and perceived effort in activities of daily living (ADL) in young adults aged between 18-29 was researched. To examine this relationship not only the direct connection between the three variables was researched but also if hopelessness is a mediator in the relationship between depressive symptoms and perceived effort in ADL.

The results supported the first hypothesis, finding that higher levels of depressive symptoms were associated with higher levels of perceived effort in ADL. This indicates that individuals who experience more depressive symptoms perceive ADL as more demanding and take more effort. These findings are in line with previous literature on ADL functioning. These studies stated that depression is a significant predictor of ADL decline among the elderly (Dunlop et al., 2005; Liu et al., 2023). Furthermore, Kondo et al. (2007) indicated that depression also increases the decline of functioning in ADL among the elderly. Although these studies were conducted with a focus on older adults and on objective ADL decline, they provide valuable insight into the possible mechanisms that influence ADL functioning. These underlying mechanisms may not only play a role in the elderly but also relate to younger populations. Therefore, the current findings suggest that depressive symptoms and higher perceived effort in ADL functioning in young adults have similar underlying processes.

The second hypothesis was confirmed finding that higher levels of depressive symptoms are related to higher levels of hopelessness. This suggests that young adults who experience more depressive symptoms have also more feelings of hopelessness. These findings are in line with previous findings indicating that depressive symptoms lead to increased hopelessness (Abramson et al, 1989; Assari & Lankarani, 2016).

The third hypothesis was also confirmed, showing that higher levels of hopelessness are related to a higher level of perceived effort in engaging in ADL. This indicated that young

adults who experience higher levels of hopelessness experience ADL as more demanding and taking more effort. An explanation for this finding is that young adults who have hopelessness experience more passivity and lack of motivation which can result in ADL being perceived as more demanding and taking more effort to maintain. Although previous studies do not explicitly mention the term hopelessness as a predictor in higher perceived ADL effort. Previous research suggests that these underlying mechanisms such as motivation can be an explanation for the relationship between depression and ADL (Dunlop et al., 2005). Based on the theoretical background the relationship between hopelessness and perceived effort in ADL can be understood through the framework of Glass (1998), where individuals' belief in their capability can influence their engagement. Hopelessness may distort this belief, increasing the sense of effort despite changed physical capability. Furthermore, the Hopelessness theory of Abramson et al. (1989) explains how hopelessness can lead to motivational deficits and withdrawal from activities.

The fourth and last hypothesis stated that higher levels of depressive symptoms would lead to higher levels of hopelessness, which in return will result in higher perceived effort in ADL in young adults aged 18-29. While the overall mediating role of hopelessness in this relationship was positive, it did not reach statistical significance. This may be an indication that hopelessness in general is not a strong mediator in the relationship between depressive symptoms and ADL functioning. Therefore, this last hypothesis was rejected. However, when looking at the subdomains of ADL, statistical significance was reached for one. Specifically, hopelessness significantly mediated the relationship between depressive symptoms and the perceived effort required for household tasks. Notably, 66% of the effect of depressive symptoms on household task effort could be explained by feelings of hopelessness. These findings could indicate that hopelessness plays a role in demanding more effort in managing certain aspects of daily life, such as household tasks.

A possible explanation for this indication can be that household tasks require more planning, initiative, and energy than certain other aspects of ADL. These findings are consistent with earlier studies, such as the cross-sectional study of Molarius en Metsini (2021), who found that it is not the number of hours spent on household tasks but the subjective experience of burden that is strongly linked to depressive symptoms. A follow-up study found that this relationship is formed in a U-shape and that it is affecting either individuals who do very little, or a lot of household tasks were more likely to perceive it as a burden, which in turn was associated with poorer mental health. Furthermore, they found a dose-response relationship in which how higher individuals perceived the burden, how higher their depressive symptoms were. The research discussed mental effort, lack of motivation, and planning control are possible explanations for this higher perceived burden (Molarius & Metsini, 2023). These findings support the idea that hopelessness and the underlying lack of motivation and passiveness can be an explanation for higher perceived effort in ADL tasks.

Strengths and Limitations

This study offers several strengths that add value to the existing literature. First, its focus on young adults addresses an understudied population in ADL functioning. The focus on depressive symptoms gives new insight into the effect of these on the challenges of independent living in young adults. Second, the newly constructed ADL scale provides more insight into the perceived experience of performing ADL, focusing on the perceived effort that is necessary for an individual to perform these activities. Furthermore, the subscales of basic ADL, household tasks, meal preparation, and social and engagement tasks give more insight into the dimensions of ADL. Additionally, these subscales gained the current study more insight into which domain of ADL young adults perceive as most demanding.

While the results contribute to the understanding of the relationship between depression and ADL, several limitations should be acknowledged. First, this study used a cross-sectional design, which is a limitation as it prevents the study from making statements about causality. Based on previous studies on the elderly finding that the relationship between depression and ADL is bidirectional, this could suggest that this is also the case among young adults (Wang et al, 2024). This could indicate that depression and perceived effort in ADL could reinforce each other over time.

Secondly, a limitation of this study is that the assumption of equal variance was violated for the relationship between depression and hopelessness. This indicates the presence of heteroscedasticity, meaning that the residuals did not show a constant spread across the levels of hopelessness. In addition, the total scores of both variables were not normally distributed. Therefore, Spearman's rank correlation was used instead of Pearson's correlation in the bivariate analyses, as it does not assume normality or equal variance. However, in the regression and mediation analyses, no formal correction was applied. This indicates that this violation may affect the reliability of the standard errors and as a result the significance level. Therefore, the interpretation of this specific relationship should be approached with some caution as the significance is less reliable.

The third limitation is that this study had relatively a lot of dropouts. From all the respondents 38.3% were excluded as they did not finish the survey or did not meet the eligibility requirements. From the participants who did not finish the study a lot stopped after the question "Have you been diagnosed with any serious mental illness". This question was included at the start of the survey due to ethical guidelines, aiming to protect participants potentially at risk due to emotional vulnerability. Participants were informed in advance that the study would involve sensitive topics and were given the option to respond with "yes,"

"no," or "prefer not to say." However, participants who left the item blank were excluded from the dataset, which may have contributed to the dropout rate. A possible explanation for these dropouts could be that participants were confronted with their mental well-being, were not emotionally available to reflect on their feelings or just did not want to answer these questions as it can be perceived as invasive. This dropout rate may have influenced the generalizability and robustness of the findings, as it reduced the overall sample size and may have introduced a degree of selection bias.

Future research

The current study highlights the important role of depressive symptoms and hopelessness in the perceived effort required for daily functioning among young adults. The findings suggest that depression and underlying mechanisms such as hopelessness have an impact on functioning in daily tasks, particularly household tasks. Based on these findings future research is recommended.

The first recommendation for future research is to further explore the bidirectional relationship between depressive symptoms and perceived effort in ADL. While the current study provided valuable insights into how depression and hopelessness relate to perceived effort in ADL, its cross-sectional design limits any conclusions about causality. Future research using longitudinal designs could examine whether a similar dynamic exists in young adults, potentially highlighting critical periods where intervention could be most effective. This design could have a similar set-up as the study of Wang et al. (2024), who analysed data from the China Health and Retirement Longitudinal Study (CHARLS) involving middle-aged and elderly individuals. The Dutch Tracking Adolescents' Individual Lives Survey (TRAILS) follows participants from age 10–12 into young adulthood, collecting longitudinal data on physical and mental health across developmental stages (Oldehinkel et al., 2015). This existing study could be enhanced by adding questions about perceived ADL

effort to allow researchers to investigate the effect of depressive symptoms on ADL functioning over time.

Second, further research is needed on the mediating role of hopelessness in the relationship between depressive symptoms and household tasks. The current study found that hopelessness mediated the relationship between depressive symptoms and perceived effort in household tasks, but not in other ADL domains. Future research should examine why household tasks are especially affected. Qualitative methods, such as interviews or diary studies, could help gain deeper insight into the cognitive patterns and emotional responses that underlie this perceived effort in ADL. For example, the study of White and Shih (2012) used daily diary questionnaires to examine the relationship between depressive symptoms, co-rumination, and stressful events. This approach could be enhanced by incorporating questions regarding ADL functioning and underlying thoughts and motivation.

Finally, future research could examine additional mechanisms such as cognitive workload, and motivation that may influence the relationship between depressive symptoms and perceived effort in ADL. Incorporating both longitudinal and qualitative research will help to gain a deeper understanding of the relationship between depressive symptoms, hopelessness, and perceived effort in ADL.

Conclusion

To conclude, the current study provides new insights into the exploration of the relationship between depressive symptoms, hopelessness and perceived ADL effort in young adults. The results support the idea that both depressive symptoms and hopelessness are significantly related to greater perceived effort in ADL tasks. Although the overall mediating role of hopelessness was not statistically significant, its specific impact on perceived effort in household tasks gives an indication of potential underlying mechanisms that play a role in

everyday functioning. While further research is needed to clarify causality, underlying mechanisms, and specific domains of ADL, the current findings demonstrate a direct relationship between these variables. This can provide a theoretical basis for future interventions to help young adults suffering from depression function in their daily tasks. Since ADL tasks are present in all the lives of young adults it is important to promote positive perceptions of these tasks and to reduce the effort they are perceived to require. This study lays the groundwork for targeted interventions and future research aimed at enhancing well-being and independence in young adults.

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AI Statement

During the preparation of this work the author used ChatGPT, Grammarly, and DeepL in order to assist with translation, data analysis, grammar and structure suggestions. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the work.

Appendix A

Informed consent

You are being invited to participate in a research study titled **Exploring the relationship between depressive symptoms and functioning in Activities of Daily living (ADL).** This study is being done by **Jacobine Tempelaar** from the Faculty of Behavioural, Management and Social Sciences at the University of Twente.

The purpose of this research study is to **explore the relationship between depressive symptoms and ADL and to explore if hopelessness is a mediator in this relationship.** This survey will take you approximately **10-15** minutes to complete. The data will be used for a third-year bachelor theses and this will be graded by faculty members of the University of Twente. This research project has been reviewed and approved by the BMS Ethics Committee/domain Humanities & Social sciences.

Procedure

You will be asked to complete an online questionnaire, which includes three validated scales: **the Beck Depression Inventory (BDI), the Beck Hopelessness Scale (BHS), and an ADL effort scale assessing difficulty in daily functioning.** Completing the questionnaire will take approximately **10 to 15 minutes.** Your participation in this study is entirely voluntary. You may refuse to answer any question, and you may withdraw from the study at any point without needing to give a reason. There are no negative consequences if you choose not to participate or decide to stop.

This study involves **questions about depressive symptoms and hopelessness**, which may cause emotional discomfort as it is an sensitive topic. If you feel distressed at any point, you

can **take a break, stop participation, or seek support** (see resources below).

All data will be kept **confidential and anonymous**. This includes that **no identifying information (e.g., name, email) will be collected.** The data will be stored securely on **Qualtrics** and accessible only to the research team. Lastly, Personal data (e.g., age, education level) will be **removed after data collection is complete**.

If you experience distress while participating, you may contact:

- University of Twente student counselor
    - Email: student-counsellor@utwente.nl
    - Phone number: +3153 489 2035
- Your own general practitioner (GP)
- **The Dutch Listening Line (De Luisterlijn)** at **088 0767 000** – available 24/7 for confidential support.
- **113 Suicide Prevention** at **0800 0113** (free of charge) or visit www.113.nl – available 24/7 for urgent mental health support.

All data collected in this study will be treated with strict confidentiality and stored securely. No identifying information such as your name, email address, or IP address will be collected. We will only gather general demographic information, including age, gender and year of study. After the data collection phase is completed, any personal information will be removed, and the dataset will be fully anonymized. The anonymous data will be stored on the secure Qualtrics platform and will only be accessible to the research team. In accordance with the University of Twente's research policy, data will be stored for a maximum of ten years.

The data collected in this study will be used solely for academic purposes related to the

Bachelor thesis. The findings may be presented in the thesis and potentially shared within the university community, but under no circumstances will any information be used to identify you. The anonymized data collected during this study may be reused for future academic research, including educational purposes such as thesis work, replication studies, or other related behavioural research projects conducted under the supervision of the University of Twente.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl

Study contact details for further information: Jacobine Tempelaar, *j.c.tempelaar@student.utwente.nl*

Taking part in the study

You'll have to answer all the questions below with yes or no, otherwise you cannot proceed to the following parts.

I have read and understood the study information sent to me. I have been able to ask questions about the study before I participated and my questions (if any) have been answered to my satisfaction.

- Yes
- No

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

- Yes
- No

I understand that taking part in the study involves answering questions about depressive symptoms, effort in activities of daily living and hopelessness.

- Yes
- No

I understand that taking part in the study involves answering questions about a sensitive topic, which can cause discomfort. I understand that when I feel distressed I can take a break, stop participation, or seek support to resources provided in this form.

- Yes
- No

I understand that information I provide will be used for third year psychology bachelor thesis. This thesis will be read and graded by teachers of the University of Twente.

- Yes
- No

I give permission for the use of my test results that I provide to be archived in Qualtrics databases so it can be used for future research and learning. This data will be anonymized by

removing personal data. I understand that test results will only be used for research purposes regulated by the University of Twente.

- Yes
- No

Study contact details for further information: Jacobine Tempelaar, *j.c.tempelaar@student.utwente.nl*

Appendix B

Beck's Depression Inventory (BDI)

BDI-II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully. And then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness
    0. I do not feel sad.
    1. I feel sad much of the time.
    2. I am sad all the time.
    3. I am so sad or unhappy that I can't stand it.
2. Pessimism
    0. I am not discouraged about my future.
    1. I feel more discouraged about my future than I used to.
    2. I do not expect things to work out for me.
    3. I feel my future is hopeless and will only get worse.
3. Past Failure
    0. I do not feel like a failure.
    1. I have failed more than I should have.
    2. As I look back, I see a lot of failures.

    3. I feel I am a total failure as a person.

4. Loss of pleasure

    0. I get as much pleasure as I ever did from the things I enjoy.

    1. I don't enjoy things as much as I used to.

    2. I get very little pleasure from the things I used to enjoy.

    3. I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

    0. I don't feel particularly guilty.

    1. I feel guilty over many things I have done or should have done.

    2. I feel quite guilty most of the time.

    3. I feel guilty all of the time.

6. Punishment Feelings

    0. I don't feel I am being punished.

    1. I feel I may be punished.

    2. I expect to be punished.

    3. I feel I am being punished.

7. Self-Dislike

    0. I feel the same about myself as ever.

    1. I have lost confidence in myself.

    2. I am disappointed in myself.

    3. I dislike myself.

8. Self-Criticalness

    0. I don't criticize or blame myself more than usual.

    1. I am more critical of myself than I used to be.

    2. I criticize myself for all of my faults.

3. I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes
    0. I don't have any thoughts of killing myself.
    1. I have thoughts of killing myself, but I would not carry them out
    2. I would like to kill myself.
    3. I would kill myself if I had the chance
10. Crying
    0. I don't cry any more than I used to.
    1. I cry more than I used to.
    2. I cry over every little thing.
    3. I feel like crying, but I can't.
11. Agitation
    0. I am no more restless or wound up than usual.
    1. I feel more restless or wound up than usual.
    2. I am so restless or agitated, it's hard to stay still.
    3. I am so restless or agitated that I have to keep moving or doing something.
12. Loss of Interest
    0. I have not lost interest in other people or activities.
    1. I am less interested in other people or things than before.
    2. I have lost most of my interest in other people or things.
    3. It's hard to get interested in anything.
13. Indecisiveness
    0. I make decisions about as well as ever.
    1. I find it more difficult to make decisions than usual.
    2. I have much greater difficulty in making decisions than I used to.

3. I have trouble making any decisions.

14. Worthlessness

0. I do not feel I am worthless.

1. I don't consider myself as worthwhile and useful as I used to.

2. I feel more worthless as compared to others.

3. I feel utterly worthless.

15. Loss of Energy

0. I have as much energy as ever.

1. I have less energy than I used to have.

2. I don't have enough energy to do very much.

3. I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0. I have not experienced any change in my sleeping.

1a. I sleep somewhat more than usual.

1b. I sleep somewhat less than usual.

2a. I sleep a lot more than usual.

2b. I sleep a lot less than usual.

3a. I sleep most of the day.

3b. I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

0. I am not more irritable than usual.

1. I am more irritable than usual.

2. I am much more irritable than usual.

3. I am irritable all the time.

18. Changes in Appetite

0. I have not experienced any change in my appetite.

1a. My appetite is somewhat less than usual.

1b. My appetite is somewhat greater than usual.

2a. My appetite is much less than before.

2b. My appetite is much greater than usual.

3a. I have no appetite at all.

3b. I crave food all the time

19. Concentration Difficulty

0. I can concentrate as well as ever.
1. I can't concentrate as well as usual.
2. It's hard to keep my mind on anything for very long.
3. I find I can't concentrate on anything.

20. Tiredness or Fatigue

0. I am no more tired or fatigued than usual.
1. I get more tired or fatigued more easily than usual.
2. I am too tired or fatigued to do a lot of the things I used to do.
3. I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0. I have not noticed any recent change in my interest in sex.
1. I am less interested in sex than I used to be.
2. I am much less interested in sex now.
3. I have lost interest in sex completely.

Appendix C

Beck's Hopelessness Scale (BHS)

Instructions: The Beck Hopelessness Scale is a self-report scale that was made to assess and measure the level of hopelessness that you're feeling. Please answer each question by selecting TRUE or FALSE based on how you've been feeling for the past week prior to answering this assessment, including today.

Statement

	True	False
I look forward to the future with hope and enthusiasm		
I might as well give up because I can't make things better for myself		
When things are going badly, I am helped by knowing they can't stay that way forever		
I can't imagine what my life would be like in 10 years		
I have enough time to accomplish the things I most want to do		
In the future, I expect to succeed in what concerns me most		
My future seems dark to me		
I expect to get more good things in life than the average person		

I just don't get the breaks, and there's no reason to believe I will in the future		
My past experiences have prepared me well for the future		
All I can see ahead of me is unpleasantness rather than pleasantness		
I don't expect to get what I really want		
When I look ahead to the future, I expect I will be happier than I am now		
Things just won't work out the way I want them to		
I have great faith in the future		
I never get what I want so it's foolish to want anything		
It is very unlikely that I will get any real satisfaction in the future		
The future seems vague and uncertain to me		
I can look forward to more good times than bad time		
There's no use in really trying to get something I want because I probably won't get it		

Appendix D

ADL Effort Scale

Activities of daily living are the essential tasks that individuals perform daily to maintain personal care and independence. This questionnaire is consists of 20 items referring to different forms of ADL. Please read every item carefully and then pick the one statement (effort from 0-4 spoons) that describes the way you have been feeling during the past two weeks. Be sure that you do not choose more than one statement for any group.

- **No effort at all (0 spoons)** - I can do this without thinking about it.
- **Minimal effort (1 spoon)** - I can do this easily but need a little push.
- **Moderate effort (2 spoons)** - I can do it, but it takes noticeable effort.
- **High effort (3 spoons)** - I struggle significantly and may need breaks/support.
- **Extremely difficult or impossible (4 spoons)** - I cannot do this without full assistance, or I avoid it entirely.

	Requires no effort (0)	Requires minimal effort (1)	Moderate effort required (2)	High effort required (3)	Extremely difficult or impossible (4)
Basic Activities of Daily Living					
Getting out of bed in the morning					
Getting dressed					
Taking prescribed medication (if applicable)					

Brushing teeth					
Washing (Bathing/showering)					
Styling hair					
Household Tasks					
Washing dishes					
Taking out the trash					
Doing laundry (washing, drying, folding, putting away)					
Cleaning surfaces (tables, counters, sinks)					
Vacuuming or sweeping floors					
Meal Preparation & Nutrition					
Deciding what to eat					
Preparing a meal					
Grocery shopping					

Eating meals regularly (not skipping)					
Social & Engagement Tasks					
Responding to messages (texts, emails, social media)					
Making plans with friends/family					
Leaving the house for non-essential activities (e.g., socializing, hobbies)					
Exercising					
Managing finances					