

WILL-TO-LIVE SCALE AS A PREDICTOR OF DEPRESSIVE SYMPTOMS IN ELDERLY: AN EVIDENCE-BASED CASE REPORT

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Abstract

An elderly man was admitted to inpatient care after a check-up with a gerontologist, stating that he had no will to continue living and showing other depressive symptoms. The gerontologist then ponders whether the will to live is prognostic for depression, specifically in elderly patients. The report aims to determine whether the will to live, measured by the Will-to-Live (WTL) scale, can predict depressive symptoms (DS) emerging in elderly patients. A literature search was conducted on three databases: PubMed, Cochrane, and EBSCOhost. Of the searches, two articles were selected for further critical appraisal using the criteria provided by the University of Oxford Centre of Evidence-Based Medicine. first study, using the WTL Scale to quantify WTL and the Geriatric Depression Scale (GDS) to measure DS, showed that WTL can predict DS but not vice versa with moderate negative correlation ($r = -0.49$ $p < 0.001$). The second study analyzes the temporal relationship further, showing that WTL still has a negative correlation with DS (measured by modified GDS) ($r = -0.4$, $p < 0.05$) when assessed in the same time frame but shows little to no correlation when used as a predictor for DS after a 1-year interval from the initial assessment ($r = 0.14$, $p < 0.05$). The Will-To-Live Scale has the potential to be a more practical tool in predicting depressive symptoms in gerontology settings as compared to usual methods after further validation studies.

Keywords

Will-to-live, Elderly, Depression, WTL Scale

Introduction

Aging people are at risk of many physical, mental, and spiritual conditions which may reduce their quality of life. Processes such as physiological and anatomical changes, radical lifestyle changes, and other social arrangements may increase the risk of developing frailty and mental illnesses, among other problems. To alleviate and reduce the risk of such happenings, “successful aging” must be a focus, especially in aging countries such as Indonesia.¹

According to a model by Crowther et al., successful aging can be divided into four components: engagement in active life, minimizing risk and disability, maximizing physical and mental abilities, and maximizing positive spirituality. These components are achieved by compromising, being aware of, and accepting the realities of their circumstances, and engaging in life with purposeful effort while maintaining relationships and positive self-respect. As such, any barriers to maximizing positive spirituality, such as depression, must be detected as early as possible to help the aging person navigate their lives in a way that is purposeful and with dignity, irrespective of their reduced faculties.¹

The Will-to-Live scale (WTL), developed by Carmel et al.² (shown in figure 1) has been demonstrated to have associations with subjective well-being (SWB) components such as health status, self-rated health, self-esteem, and life satisfaction. This case report focuses on the negative associations of WTL with depression, among many other indicators. More attention should be given to the WTL scale as it has been judged to be too normative, but newer research has suggested that there is value in further exploring this concept.²

Please circle the number under the most appropriate response for you:

1. In your current condition, would you want to continue living for many years?

Certainly, yes	I think I would	I don't know	I think that not	Certainly not	I have no will to live
5	4	3	2	1	0

2. In comparison to people your age, how would you evaluate your will to live?

Much stronger	stronger	not stronger and not weaker	weaker	much weaker	I have no will to live
5	4	3	2	1	0

3. How would you evaluate your will-to-live today, in comparison to what it was when you were younger?

Much stronger	stronger	as it was when I was younger	weaker	much weaker	I have no will to live
5	4	3	2	1	0

4. If you would evaluate your will to live on a scale from 0 to 5, would you say that it is:

The strongest possible	strong	intermediate	weak	very weak	I have no will to live
5	4	3	2	1	0

5. In the last year, would you say that your will-to-live:

Became much stronger	became stronger	has not changed	weakened	much weakened	I had no will to live
5	4	3	2	1	0

Figure 1. Will-to-live Scale

Case Report

A 75-year-old male patient presents to a Gerontology Clinic for his monthly check-up. He came with a refusal to eat, which has been persistent for a week now. Vital signs were within normal limits; other accompanying symptoms, such as fever, nausea,

vomiting, and digestion problems, were not found. In physical examination, the patient has general weakness of extremities. As the patient presents with lethargy, general weakness, and reported refusal to eat, a decision is made to admit the patient. Laboratory examinations were done, and none were significant other than minor electrolyte imbalances.

During anamnesis, the patient stated that he has no more will to live. Recently, the gerontologist has read about the concept of WTL, its prognostic value in measuring SWB, and its prognostic ability to detect and predict depression. The gerontologist then ponders whether the WTL scale can be used to indicate depression or its symptoms.

A search on PUBMED, EBSCOhost, and SCOPUS regarding the use of the WTL scale to detect depression and depressive symptoms was done. The clinical question for this search is: “Can the WTL predict depression/depressive symptoms in older patients aged >65 years old?”. The PICO terms used to search the relevant literature are as follows:

Table 1. PICO terms for literature search

Patient (P)	Elderly, Older patients, >65 years
Intervention (I)	WTL Scale
Comparison (C)	No comparison
Outcome (O)	Detection of depression/depressive symptoms

The search yielded two articles, with articles not relevant to the PICO being excluded. The remaining articles are then critically appraised.

On another date, the gerontologist then asks five questions (included in the WTL scale questionnaire), which measures the strength and stability of a person’s WTL in both past, present, and future, by directly asking the person questions regarding their actual will to live and not factors associated with it, expressed in a scale of 0 to 5. The patient answers all questions truthfully.

The gerontologist then took the average value from all the answers and determined that the patient had a low will to live. Concerned with the low score, the gerontologist uses this as an impetus to address each component of SWB in the patient and to refer the patient to a psychiatrist for the possibility of depression while adjusting for personalized care accordingly.

Results

A literature search was done on the 5th of October 2023 with PUBMED, Cochrane, and EBSCOHost with keywords “will-to-live,” “WTL Scale,” “depression,” “depressive symptoms,” “elderly,” “>65 years old”. Specific search queries are stated in Table 2.

Table 2. Search Strategy

Database	Search Query
PubMed	("WTL"[All Fields] OR "will-to-live"[All Fields] OR "will-to-live"[All Fields]) AND ("depressed"[All Fields] OR "depression"[MeSH Terms] OR "depression"[All Fields] OR "depressions"[All Fields] OR "depression s"[All Fields] OR "depressive disorder"[MeSH Terms] OR ("depressive"[All Fields] AND "disorder"[All Fields]) OR "depressive disorder"[All Fields] OR "depressivity"[All Fields] OR "depressive"[All Fields] OR "depressively"[All Fields] OR "depressiveness"[All Fields] OR "depressives"[All Fields] OR "depressive symptoms"[All Fields]) AND ("older"[All Fields] OR "olders"[All Fields] OR "elder*"[All Fields] OR "65 year*"[All Fields])
Cochrane	(WTL OR "will to live" OR "will-to-live"):ti, ab,kw AND (depression or "depressive symptoms"
EBSCOHost	(will to live AllFields OR WTL AllFields) AND (depression AllFields OR "depressive symptoms" AllFields)

This search strategy returned 54 results from PubMed, four from Cochrane, and nine from EBSCOHost. After screening the abstracts for content and duplicates, one relevant article was selected for further critical appraisal. Further manual searches are done based on references and using “Successful Aging” as an additional prompt. Manual searching yielded one additional article which was chosen for further critical appraisal. The screening process (PRISMA Flowchart) is shown in Figure 2. Critical appraisal was done using the University of Oxford CEBM Prognosis Critical Appraisal Tool. The results of the appraisal are shown in Table 3.

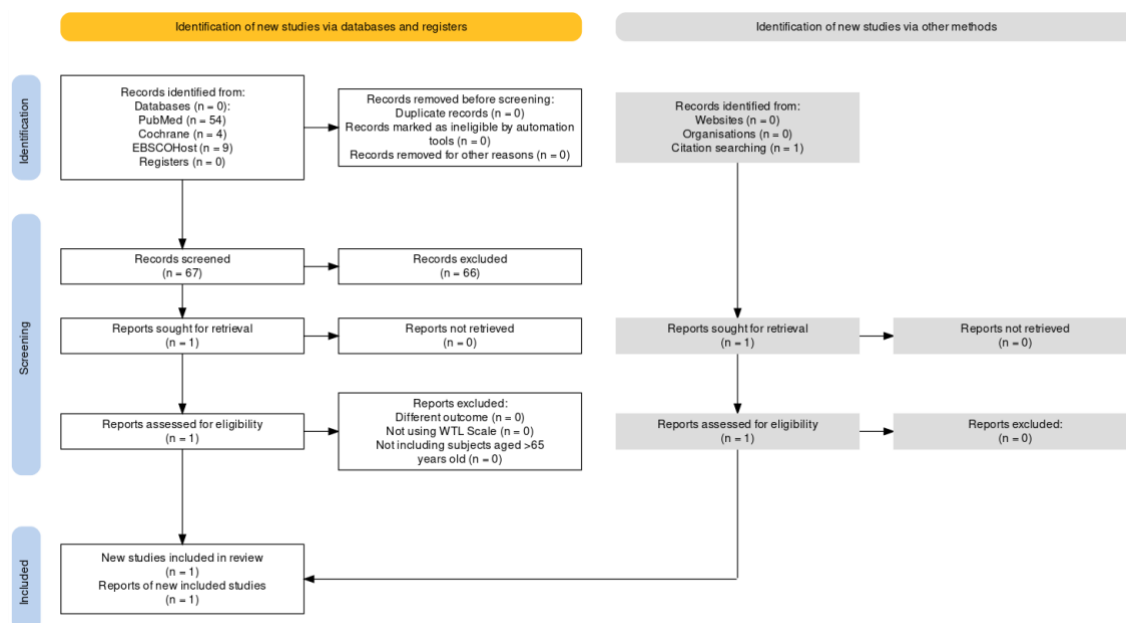


Figure 2. PRISMA Flowchart

Table 3. Critical Appraisal Results

Criteria	Carmel et Al (2018)³	Shrira et Al (2018)⁴
Validity		
Was the defined representative sample of patients assembled at a common (usually early) point in the course of their disease?	Yes People aged 75 and older living in 3 cities in the northern, central, and southern regions of Israel There was no mention of controlling for clinical diagnosis of depression All patients were independent as measured by ADL and cognitively competent as measured by MMSE	Yes Participants aged 75+ were randomly drawn from records provided by the Ministry of Internal Affairs. All patients were independent as measured by ADL and cognitively competent as measured by MMSE
Was patient follow-up sufficiently long and complete?	Yes 1,216 elderly were interviewed and were followed up annually for 2 consecutive years. Loss to follow up is negligible (83.8% of original sample re-interviewed in first year follow-up, 71.3% of original sample reinterviewed in second year follow-up)	Yes 1,216 elderly were interviewed and were reinterviewed after 1 year interval. Loss to follow-up is negligible (83.7% of original sample reinterviewed)
Were outcome criteria either objective or applied in a 'blind' fashion?	Yes The outcome (Depressive Symptoms) was measured using 6 items from the original 15-item Geriatric Depression Scale. No blinding was applied	Yes The primary outcome for successful aging were measured using previous study matrix by Pruchno et al., other outcomes were measured using ADL questionnaire. Depressive symptoms were measured using the original 15-item Geriatric Depression Scale

If subgroups with different prognoses are identified, did adjustment for important prognostic factors take place?	No	Yes
	No adjustment took place aside from the loss to follow up subjects between the annual follow up	Some of the variables that has significant association with sociodemographic variables were made as covariates, including depressive symptoms

Importance

How likely are the outcomes over time?	Unclear	Unclear
	The study did not show a graph over time on how likely the outcomes over longer periods are.	The study did not show a graph over time on how likely the outcomes over longer periods are.
	The study shows that WTL and DS has a significant moderate correlation when being assessed in the same time frame ($r: 0.43, p < 0.05$) but only shows weak correlation when used as a predictor for the upcoming year ($r: 0.14, p < 0.05$)	The study shows that WTL has a significant correlation with Depressive Symptoms ($r = -0.49, p < 0.001$)
How precise are the prognostic estimates?	Unclear	Unclear
	The study did not specify the confidence interval that they are working with	The study did not specify the confidence interval for the association between WTL and depressive symptoms, only the standard deviation (SD 3.27)
	The 90% CI for the root mean square error of approximation was between 0.035 and 0.041, rejecting the not-close fit hypothesis (good fit)	

Applicability

Can I apply this valid, important evidence about prognosis to my patient?	Yes	Yes
Were the study patients similar to your own?	Yes	Yes
Can you apply this valid, important evidence about	Yes	Yes

prognosis in caring for your
patient?

Discussion

Depression and dementia are prevalent mental health conditions among older adults, surpassing substance misuse and anxiety disorders in frequency. This encompasses both new-onset depression in later life and long-standing, chronic cases. However, numerous instances of depression go unnoticed or are misdiagnosed, as older individuals with depression often primarily display physical health symptoms. This oversight is not because they avoid seeking help from healthcare professionals, as up to 75% of older adults who die by suicide had visited a physician within a month before their passing. Consequently, there is a critical need to enhance the identification, prevention, and treatment of depression in older adults.

As mentioned before, the WTL Scale was not widely used. As such, only a handful of studies even used the WTL scale, let alone correlated it with other well-being predictors. Recently, strides made by Carmel et al.² reintroduced the WTL Scale after two longitudinal studies conducted in two countries. The scale was a significant predictor of long-term survival among elderlies. The scale consists of five items and six responses on a Likert scale. The study by Shrira et al.⁴ shows that WTL correlates negatively with depressive symptoms ($r=-0.49$, $p<0.001$) but was shown not be bidirectional ($r=0.1$, $p<0.001$). Supporting this is the proposed theory of how WTL precedes depressive symptoms, not vice versa discussed below. The study by Carmel et al.³ also shows that WTL negatively correlates with depressive symptoms ($r=-0.43$, $p<0.05$). Carmel et al.³ further demonstrated a weak correlation between WTL and depressive symptoms after a 1-year interval from the initial assessment ($r=0.14$, $p<0.05$), implying that WTL can predict depressive symptoms only in the same timeframe.

According to the life-events theory, exposure to life events in general, particularly negative setbacks, disrupts one's equilibrium and causes stress, which in turn initiates a physiological and psychological adaptation. This adaptation demands a substantial investment of personal resources and may inflict exhaustion, resulting in a physical illness, which can be mistaken for depressive symptoms.⁴ Health itself was found as the most important predictor of depressive symptoms and WTL. The elderly with illnesses such as dementia and cardiovascular diseases are more likely to develop depression than their healthier counterparts.

In addition to the proposed theory, another possible explanation to why DS does not correlate well with WTL is that high functioning depression exists, which may suffer from a myriad of depressive symptoms but lack active or passive suicidal ideation. Depressive symptoms by themselves may not indicate low WTL, but people with low WTL are that much more likely to have accompanying DS.

This may also explain the episodic nature of the relationship between WTL and depressive symptoms, as physical maladies reducing a person's WTL may not linger for more than a year, or a person may come to terms with their condition given time, reducing its prognostic ability to predict for depression in later times. However, chronic low WTL may give rise to actual clinical depression.

With life being difficult for these patients due to the actual physical limitations, the drive to live diminishes, creating apathy and reducing the motivation to live. These changes in daily activities lead to further withdrawal from social and health-related activities, which accelerates a decline in health and function, which in turn further intensifies major symptoms of depression. It can be said that preserving a person's WTL (through the aspects that define WTL) can protect people from further mental health decline. Previous study by Rodriguez et al.⁵ shows that The WTL reflects an individual's overall well-being and their determination to "hold on to life." The WTL is linked to various physical and psychological aspects of life, and the significance of these aspects may vary depending on different life circumstances. In contrast to the universal nature of the will to live as a fundamental human condition, depression is not a regular facet of life or aging. Depression can occur throughout a person's life across different races, genders, and ages. However, it is the most prevalent mental health disorder in late life and significantly diminishes one's quality of life.

Incorporating the concept of the will to live into the perspective of end-of-life care by healthcare professionals may assist older adults in developing a more comprehensive awareness of mortality. This approach can also facilitate specific treatment decisions. The WTL scale is applicable as a practical alternative to detect depressive symptoms in the elderly and has the additional benefit of being a crude indicator of other possible factors that may affect WTL, namely the other SWB indicators.

It is important to note that WTL was not meant to replace established tools for depression or DS screening. As explained in the theory concerning WTL and subsequent DS, WTL has additional ability to help with preliminary differential diagnosis before diagnosing with possible depression, given its strong ties to health (both objective and subjective) first and foremost.

Further psychometric analysis is also recommended, comparing with usual diagnostic tools such as GDS and DSM V, since there is not yet clear evidence in support of using WTL as a standardized tool for predicting undetected or misdiagnosed DS. The validity of the WTL Scale among the Indonesian elderly warrants further study, as values and norms may vary between cultures and religious beliefs.

Competing Interests

Authors (EAS, JQ) declare no conflict of interest.

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