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Research Article

Exploring Life Satisfaction Determinants among Older Adults with Disabilities in Abu Dhabi: A Hierarchical Regression Approach

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Abstract

For Abu Dhabi, it is unclear what specific determinants of wellbeing have significant associations with the life satisfaction of older adults with disabilities. Results could support our understanding to identify better the most relevant determinants of life satisfaction for this vulnerable segment of the community. We investigate the significant factors influencing the life satisfaction of older adults with disabilities in Abu Dhabi, drawing from 319 older adults (60+) with disabilities who participated in the Abu Dhabi Quality of Life survey conducted in 2021. We explored the best-fit hierarchical regression model while controlling for specific individual attributes. We performed an extensive pre-analysis of the assumptions necessary to perform hierarchical regression. A short descriptive post-analysis explored the differences between older people with disabilities and without disabilities. The models identified several life satisfaction determinants for older adults with disabilities, including satisfaction with family life, subjective mental health, trust in the healthcare system, the surrounding living environment, and the feelings of burdening family and society. The significant model did not contain many other significant determinants in similar studies in other cultures, such as subjective health. In addition to other common factors related to income, environment, and connection, results reflected that older adults with disabilities feel that they are a burden on both their family and society when it comes to their life satisfaction.

Introduction

Many countries acknowledged the aging of the population and its impact on long-term care expenditures are widely acknowledged, as they have started adopting policy reforms to address the consequences of population aging (AUTHORS). Relevant results might reveal more insights into constructive agendas to support policymakers in optimally allocating healthcare services to such a vulnerable group [1]. In addition, using broader outcome measures as results of such well-being surveys may provide additional information relevant to the decision to exhibit more focus on better care for older adults [2]. Multiple research studies focusing on the association of age and life satisfaction measures of older adults have found that health problems are the key determinants of life satisfaction [3]. Some studies have explicitly focused on the healthcare for elderlies with a disability as one [4]. Improving the well-being of elderly individuals with disabilities is high on the agenda of healthcare policymakers [5]. Despite acknowledging the relevance of well-being measures beyond health for older adults, scientific evidence remains sparse [6].

This study aims to increase our understanding of whether being with a disability is associated with the self-reported level of life satisfaction among older adults in Abu Dhabi. This association is fascinating to study since a disability could persist throughout a person's lifetime. Given the increasing focus on subjective well-being as an outcome measure for elderlies with disabilities, examining what constitutes their life satisfaction and the determinants of their life satisfaction is essential. For Abu Dhabi, the third cycle of the Quality of Life (QoL-3) survey could serve as a valuable source of data to address the associations of well-being measures regarding the life satisfaction of older adults. We expect that the results of this study could boost our understanding of the well-being and life satisfaction of older adults in general and those with disabilities in particular to inform social policymaking.

Review of Literature

Life satisfaction is generally seen as a construct of subjective well-being related to how people evaluate the quality of their lives. However, some researchers attach more general aspects, such as happiness and morale, to the definition of life satisfaction; and desires concerning several essential domains of life [7]. In general, for older adults, life satisfaction is related to lifestyle behaviors [8], and both objective and subjective dimensions are used in the studies of life satisfaction of older adults [9]. Growing evidence reveals that disabilities and health conditions influence the life satisfaction of older adults [3]. They reported that life satisfaction was strongly and negatively related to the presence of some disability features.

Higher frequencies of social connection and emotional support from family and close friends can mitigate the negative influence on the overall life satisfaction of older adults [10]. Some studies refer to family relations as the most significant factor for disabled elderlies [11]. Moreover, the lack of social contact could significantly predict the quality of life for older disabled persons, especially older women [12]. Meanwhile, people with many social resources cope better when struggling with health issues than those with few social resources, and thus they may enjoy better life satisfaction [13,14]. Environmental factors could act as restrictions in the social environment and everyday activities for older people with disabilities [15]. Research on active aging has shown that physical activity and physical exercise have a positive effect on the quality of life of older people with disabilities [16]. The same study noted that physical activity prevents and slows the population's aging process and improves their quality of life.

Several studies focus on the role of psychosocial factors in the life satisfaction of older adults with disabilities. For example, some suggest that older people who suffer from depressive feelings and loneliness might be more susceptible to the detrimental effects of disabilities, which lowers their life satisfaction [17]. On the other hand, they also elaborate that happier individuals live longer lives, enjoy better physical health, and possess greater psychological resilience. Thus, many researchers have paid increasing attention to maintaining happiness in older adults with disabilities [18]. Some studies pointed to the education level as a significant factor in the quality of life of older adults with disabilities [19]. Those disabled with a higher education tend to have a much better ability to function independently, which affects their quality of life [20].

Only a few studies look closely at the income and life satisfaction of older persons with disabilities [21]. In a sample from Siberia, [22], reported that factors such as income affect the life satisfaction of older adults. [23], Reported a significant relationship between life satisfaction and the source of income, as the mean score of life satisfaction of people who could buy and save was higher than that of others. A study [24] analyzed some income well-being determinants of life satisfaction of older adults with disabilities in Korea and confirmed a direct effect of income status on life satisfaction. In addition, the authors addressed the concept of a sense of coherence is discussed and seen as an essential personal factor in maintaining life satisfaction among older people with disabilities.

Several research publications are addressing the well-being of elderly adults in the context of Abu Dhabi (AUTHORS; AUTHORS). However, these studies approach the general population or older adults without focusing on the older adults with disabilities, called persons of determination (PoD) in Abu Dhabi.

Designs and Methods

The survey instrument and pre-analysis

The data used in this research were obtained from the QoL-3, an alternative, multi-attribute instrument aiming to capture well-being outcomes for all Abu Dhabi community members, including older people with disabilities. The QoL-3 is comprehensive, with

a total of fourteen modules (i. e., housing, household income, jobs and earnings, work-life balance, health, education, personal safety, social connection, civic engagement, environment quality, subjective well-being, social and cultural values, social and community services, and digital well-being. Based on the literature review, we focused mainly on the most significant predictors of life satisfaction of older disabled persons (60+ years).

A widely recognized methodology used to collect data on subjective well-being is to ask individuals to self-report their level of life satisfaction on an ordered scale [3]. Life satisfaction is usually seen as a relatively stable measure that is not dramatically affected by positive or negative life events. In this research, to be consistent with the OECD method, the self-reported level of life satisfaction, measured on a scale from 0 to 10, is used as the dependent outcome measure [25].

(Table 1) shows the associated well-being indicators initially considered significant to enter the analysis. We measured most indicators on a 1-5 scale and positively worded them. In addition, many attributes were selected to enter the analysis as control variables. They included gender, income category, education attainment, being the head of household or not, having a longstanding illness or not, being born with a disability or acquiring it later in life, and having someone to count on whenever needed. The QoL-3 was distributed online using more than 50 survey links created and distributed amongst the various community segments. As a result, more than 82 thousand respondents participated in the survey, of which 319 declared being older than 60 years with a disability.

B2. Number of family members living with you	I10. Frequency of feeling isolated from people around
B14. Condition of your residence	I11. Amount of quality time spend with family
B15. satisfaction with current residence	I12. Satisfaction with family life
C5. Satisfied with your household income	I13. Satisfaction with social relationships
E2. Hours sleeping/day	J7.1. Trust in the health system
E3. Quality of your sleep	K7. Satisfaction with greenery/park in your area
F1. Assessment of current health	K10. Satisfaction with surrounding living envivonment
F5. Extent you consider yourself obese	L19.4. Agreement with statement: PoDs are a burden on their family
F7. Subjective mental health	L19.5. Agreement with statement: PoDs are a burden on the society
F12. Frequency of eating healthy food	L19.6. Agreement with statement: PoDs have problem behaviors that make it hard for them to be involved in society or make friends
F13. Frequency of doing physical exercise	M1.1. Satisfaction with health services
F20. Satisfaction with physical exercise opportunities	M1.3. Satisfaction with services for seniors
G6. Opportunities for continuous education	M1.4. Satisfaction with services for PoDs
H3. Feeling protected and safe in Abu Dhabi	N2. Hours spend online
I2. How many people can help/support you	O1. Life satisfaction
I7.5. Involvement in religious/spiritual group	O2. Happiness
I7.9. Involvement in PoD related group	O2. Happiness
I8. Frequency of meeting with friends socially	

Table 1: Selected well-being indicators and variables in QoL-3

Analysis methods

The primary purpose of the research is to provide a comprehensive view of the determinants of life satisfaction for Abu Dhabi's older people with disabilities. After standardizing the data, we employed hierarchical multiple regression analysis using SPSS [26], where the levels corresponded to selected control variables. Hierarchical linear modeling has the advantage of modeling nested data more appropriately than regular multiple linear regression. Specifically, hierarchical regression refers to adding or removing predictor variables from the regression model in steps and blocks [27]. For example, the first block entered a hierarchical regression, including control variables. As a result, the current study aimed to account for the variability of the control variables by removing them before analyzing the relationship between the predictors and the outcome variable [28].

The pre-analysis examined the assumptions when applying hierarchical regression. First, we checked the distribution of the dependent variable. The Shapiro-Wilk significance test produced a value of 0.1698, and the Kolmogorov-Smirnov significance was 0.0803. Both were not statistically significant and indicated the normal distribution of the dependent variable. Concerning sample size, the number of 319 elderly PoDs in the analysis was deemed sufficient, given the explanatory variables in the model. It is worth noticing that some variables were eliminated from further analysis due to multicollinearity and other issues. Regarding the residual statistics, the standard residuals fell within a minimum of −2.021 and a maximum of 2.06. Both were within the range of −3 and +3. Finally, the values of Cook's distance ranged from a minimum of zero to a maximum of 0.387. A few outliers were removed accordingly.

We started the process of hierarchical regression by selecting life satisfaction as the dependent variable. For the initial models, we examined the significance of many variables such as gender, being head of household or not, having a longstanding illness or not, being born with a disability or acquiring it later in life, being able to reach the level of education wanted or not, and have someone to count on whenever needed or not. Finally, the analysis used significance tests for change in R-square to assess how additional variables accounted for the variance in the ability to make ends meet. For better comprehension, additional insights into the descriptive nature of older adults with or without disabilities were sought.

Results

(Table 2) summarizes respondents who were 60 years or older with disabilities. About 60.5% were males, 58.0% were married, 80.9% were Emiratis, and 43.3% of the respondents resided in the Abu Dhabi region, and 55.8% could only read and write without qualifications.

Gender	Percentage
Male	(193) 60.5%
Female	(126) 39.5%
Marital status	
Married	(185) 58.0%
Single	(5) 1.6%
Divorced	(14) 4.4%
Separated	(2) 0.6%
Widowed	(113) 35.4%
Education level	
Read and write with no qualifications	(178) 55.8%
Primary school	(28) 8.8%
Preparatory school	(27) 8.5%
Secondary school	(26) 8.2%
Post high school	(8) 2.5%
College degree	(42) 13.1%
Post college (Master or PhD)	(10) 3.1%
Nationality	
Emirati	(258) 80.9%
Non-Emirati	(61) 19.1%
Region of residence	
Abu Dhabi	(138) 43.3%
Al Ain	(92) 28.8%
Al Dhafra	(89) 27.9%

Table 2: Profile of respondents (60+ with disabilities)

For the first block, we included gender (male or female), nationality (Emirati or else), type of housing (villa or else), marital status (married or else), long-standing illness (yes or no), and having relatives or friends who could support when needed (yes or no). The next step involved entering other independent variables in block 2 of the model. (Table 3) shows that ten variables are significant in two blocks of the hierarchical regression models. The first model with an R-square of 0.130 suggests that the two variables - having a college degree or higher and having someone to depend on when needed - account for 13% of the variance in the life satisfaction of older adults with disabilities. The second model accounts for 72.3% of the variance in the life satisfaction of older adults with disabilities. It provides evidence to suggest that nine variables significantly affect the life satisfaction of older adults with disabilities. The analysis of variance (ANOVA) results confirms the significance of both models, with the first model recording an F-value of 9.435 and the second recording an F-value of 23.474.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.360a	.130	.116	2.55499	.130	9.453	2	127	.0001
2	.869b	.755	.723	1.42949	.626	22.440	13	114	.0001

Table 3: Model summary

(Table 4) shows the coefficients of the significant variables considered in the models. The first model produced only two significant variables, education attainment and having relatives or friends to count on when they needed help and support—having relatives and friends that could be counted on produced a significant positive effect on the life satisfaction of the older adult with disabilities. On the other hand, education attainment produced a significant adverse effect. The negative t-value (-2.861) reflects that those older adults with disabilities (characterized mainly by reading and writing) had a significant role in the results.

	Model		Unstandardized coefficients		Standardized coefficients	t-value	Sig.
			B	Std. Error	Beta		
1	(Constant)		10.739	.708		15.161	.001
	I01	Have relatives/friends I can count on	1.861	.515	.294	3.612	.001
	G102	Education attainment	-.316	.110	-.276	-2.861	.005
2	Constant		1.997	1.152		2.734	.046
	I01	Have relatives/friends I can count on	.332	.329	.052	2.109	.049
	G102	Education attainment	-.152	.072	-.133	-2.115	.037
	C11	Satisfaction with household income	.509	.165	.196	3.083	.003
	F18B	Frequency of feeling sad, low, or depressed	-.530	.131	-.273	-4.045	.001
	F18F	Frequency of feeling worried and anxious	-.342	.147	-.165	-2.326	.022
	I11	Satisfaction with family life	.590	.203	.180	2.914	.004
	J04A	I trust the health system in Abu Dhabi	.570	.169	.196	3.371	.001
	K02	Air quality around residence	-.494	.183	-.165	-2.696	.008
	M21E	PoDs are burdens on the society	-.983	.308	-.320	-3.190	.002
	L02	Happiness	.377	.068	.350	5.560	.001
	M21D	PoDs are burdens on their family	-.559	.264	-.213	-2.122	.036

Table 4: Final model coefficients

(Table 5) shows the correlations between the variables remaining in the final hierarchical model. All the correlation coefficients between the independent variables are below the 0.7 mark, suggesting a lack of multicollinearity between the independent variables. We further examined the differences between older adults with and without disabilities to obtain more insights. As shown in (Table 6), older adults with disabilities recorded lower means for most variables in the second hierarchical regression model. The highest differences in means between those with and those without disabilities are found on the two subjective mental health items (negatively worded), with a noticeable difference of 34.4% and 27.3%, respectively, followed by the variable of satisfaction with household income with a difference of 15.6%. The table also shows that the life satisfaction of older adults with disabilities is 7.2% lower than those without disabilities, and their happiness level is about 5.4%.

	I01	G102	C11	F18B	F18F	I11	J04A	K02	M21E	L02	M21D
I01	1	.069	-.204	.261	.167	-.207	-.105	-.051	.016	-.155	.077
G102	.069	1	-.201	.134	.074	-.052	-.006	-.126	-.086	-.325	-.072
C11	-.204	-.201	1	-.349	-.359	.336	.221	.132	-.081	.323	-.171
F18B	.261	.134	-.349	1	.657	-.232	-.110	.049	.234	-.256	.249
F18F	.167	.074	-.359	.657	1	-.144	-.109	.053	.226	-.186	.241
I11	-.207	-.052	.336	-.232	-.144	1	.244	.252	.051	.253	-.001
J04A	-.105	-.006	.221	-.110	-.109	.244	1	.398	-.041	.199	-.093
K02	-.051	-.126	.132	.049	.053	.252	.348	1	.068	.153	.074
M21E	.016	-.086	-.081	.234	.226	.051	-.041	.068	1	-.209	.355
L02	-.155	-.325	.323	-.256	-.186	.253	.199	.153	-.209	1	-.262
M21D	.077	-.072	-.171	.249	.241	-.001	-.093	.074	.391	-.262	1

Table 5: Correlation between variables in the final model

		% difference	Means (60+ With disability)	Means (60+ Without disability)
C11	Satisfaction with household income	15.6%	2.962	3.398
F18B	Frequency of feeling sad, low, or depressed	27.3%	2.285	1.792
F18F	Frequency of feeling worried and anxious	34.4%	1.989	1.480
I11	Satisfaction with family life	6.1%	4.221	4.478
J04A	I trust the health system in Abu Dhabi	6.5%	4.242	4.517
K02	Air quality in the area of residence	5.6%	4.070	4.296
M21E	PoDs are burdens on the society	6.1%	1.846	1.740
M21D	PoDs are burdens on their family	5.7%	1.925	1.822
L02	Happiness	5.4%	8.1812	8.6241
L01	Life satisfaction	7.2%	7.6558	8.2047

Table 6: Descriptive of older adults (with or without disabilities)

Discussions

The study concentrated on the life satisfaction of older people with disabilities. By addressing the most significant determinants of life satisfaction, the current study fills the research gap to a great extent while examining the association between disability and life satisfaction among older adults. The two psychological feeling variables (frequency of feeling worried/anxious and depressed) negatively affected the life satisfaction of disabled older people in Abu Dhabi. In addition, both feelings were significantly higher among the disabled elderlies in Abu Dhabi compared to non-disabled elderlies. These findings corroborate similar studies in the UAE – mainly from the health sector – indicating rising psychological issues among elderly populations [29]. Other regional studies indicate that geriatric populations are vulnerable to psychological disorders [30]. However, these studies did not explore differences between disabled and non-disabled elderly populations. The findings in the current study suggest that disability adds a layer of complexity in investigating psychological variables among older adults and that it may have a moderating effect on psychological well-being and life satisfaction. On the global stage, such results are also consistent with other studies that revealed the negative impact of some psychosocial factors on the life satisfaction of older adults with disabilities [17].

The Abu Dhabi study produced some results confirming that the income satisfaction of older people with disabilities could significantly affect their life satisfaction. This result is supported by the study25, which identified several significant determinants of life satisfaction of older people with disabilities, including income status and social support. In addition, it is worth noting that in 2018, UAE's Cabinet issued a landmark decree to support UAE's federal disability law. Ministerial Decree No.43 of 2018 on Supporting Special Needs (People of Determination) at Work provides a definition of disabilities that is aligned with the United Nation's Committee on the Rights of Persons with Disabilities (CRPD) and aims to protect disabled people's rights in the workplace by ensuring they have equal access to employment opportunities, as well as ensuring private and public sector employers are adhering to the guidelines necessary to support and accommodate disabled employees in the workplace [31]. Therefore, this study's results seem to validate the decree by emphasizing the significance of income for elderly populations with disabilities.

One of the most significant variables revealed in this study to be associated with life satisfaction is satisfaction with family life. The outcome offers further evidence of the significance of higher frequencies of connection and conversation with other family members to enrich the life satisfaction of older disabled persons [10,12]. Family connections are of substantial value among UAE's collective communities [32,33]. However, it is worth noting that emerging regional studies indicate that elderly care is slowly becoming a burden on caregivers. For example, a study in Saudi Arabia35 found that over 87% of caregivers were family members, and more than half expressed a need for healthcare themselves and additional training and resources to cope with emergencies. These trends may lead to a shift in the family connections dynamic in the future. From another angle, the results are consistent with studies revealing that lack of family connection and social activities among older adults with disability negatively affects their quality of life [14].

Healthcare quality plays a significant role in the life satisfaction of older adults with disabilities [4]. Broadly consistent with this is our finding that the trust of older adults with disabilities in the health system significantly enhances their life satisfaction. Consequently, healthcare policymakers should continue to look for ways to enhance the trust in the quality of healthcare for older adults [5]. Such a result is expected, considering the local health systems were a focal point for the UAE's government for constant improvements and reforms [34] and patient satisfaction with healthcare services in the UAE was found to be relatively [35], which seems to extend to elderly patients as well.

Likewise, this Abu Dhabi study revealed that air quality and living environment are essential for the well-being of older adults with disabilities [36]. For policymakers, such results might be seen as encouraging the participation of older people with disabilities in more activities they want to do to maintain and improve their life satisfaction. As recommended in the same study, policymakers should seriously consider the external environment's effect on the quality of life of older people with disabilities.

The Abu Dhabi study reveals the feelings of older adults with disabilities as burdening society and the family. Such an emotional worry is significant for the family or the social policymakers when designing initiatives to enhance their life satisfaction. This outcome is consistent with relevant studies that revealed the significance of emotional support from family and community [10]. Such results are further evidence of the significance of higher frequencies of social connection and conversation with other family members to enrich their emotional life satisfaction. The results are consistent with other international studies that refer to family connection and support as being the most significant factor of disabled elderlies in their life satisfaction [11]. Results also confirm that family emotional support and connection have more influence than other friends' support on the life satisfaction of older adults with disabilities [12]. In the comments section of the QoL-3 survey, some disabled, elderly respondents noted that "feeling like a burden reflects my worry that others might grow tired of me and my needs or requests." Such feelings might reflect the need for emotional support. Other comments stressed, "Even if those in my life reassure me that I am not a burden, I could not ignore such creeping feelings of doubt." Another general comment commented, "I am a burden to my family and the society; I depend on their support.' In a more specific comment, a female elderly with a disability commented that "I am a burden to society since I put a strain on public finances; with my condition comes decreased mobility, illness, slower reactions, which means that I do not work and may require financial and healthcare support from the family and the government."

Surprisingly, the current research did not reveal evidence to suggest the negative effect of subjective health conditions on the life satisfaction of older adults with disabilities, as shown in other studies4. Instead, it addressed that people with more social resources cope better when struggling with health issues than those with few social resources [13]. The significance of many bio-social variables such as gender, nationality, type of housing, and marital status was also not detected for Abu Dhabi's older adults with disabilities. Such results do not conform with the findings of similar studies conducted in other counties and cultures [3]. In addition, the Abu Dhabi study showed that the attainment of education for older adults with disabilities negatively affected their life satisfaction, which contradicts the results of several other studies [19]. In this regard, evidence suggests that the social support systems of elderly residents of Abu Dhabi are generally robust (AUTHORS) [37], which may be attributed to the collective nature of Abu Dhabi's society. Such indications may have contributed to this study's lack of association between subjective health conditions and life satisfaction. Furthermore, on a relative note, the conclusions resonate with suggestions from other studies to tailor well-being measures toward geriatric populations, as the well-being realities of older populations require further considerations to be captured more accurately [6].

Further analysis highlighted that life satisfaction is strongly and negatively related to disability in older adults. Some indicated a significant under-diagnosis of psychological issues among older

adults in the UAE, which may contribute to lower life satisfaction [38, 39]. For all the significant variables, the disabled older people exhibited more negative attributes. Such results are consistent with other studies that focused on older disabled people [3,12,19,36].

Conclusions

By examining the association between disability and life satisfaction among older adults, this study addressed the long-standing gap in the local Abu Dhabi literature. This study clarifies the significant associations between several determinants and the life satisfaction of older adults in Abu Dhabi. This study offers valuable input to designing and implementing more responsive, targeted policies, programs, and practices that address the life satisfaction of older adults with disabilities. Policymakers in Abu Dhabi should consider these determinants in their future planning to have a long-term strategy for enhancing the life satisfaction of Abu Dhabi's older adults with disabilities. While focusing policies on addressing specific structural factors that enhance the life satisfaction of older adults with disabilities, policymakers should be aware that specific well-being determinants are not likely associated with improving the life satisfaction of such a vulnerable segment of society. Most importantly, an utmost positive outcome will not be achieved unless policies are designed to integrate research outcomes from this study and similar research on the well-being of older adults with disabilities.

Findings suggest that family members and other health care providers need to explore how older adults with disabilities conceive burden and how their role concerns about being a burden play in family involvement in their care and their physical and mental health. Indeed, older adults with disabilities may experience guilt related to their worries and concerns about being a burden on family and society. Results encourage family members to assess their feelings of burden better. They should fully understand older adults with disabilities' expectations from their family and society and incorporate such emotional attachment into their social and cultural beliefs. In addition, policymakers should consider the expectations and needs of older adults with disabilities. Such understanding should enhance their emotional wellbeing as essential family and society members. Future research, therefore, should involve efforts to encourage the participation of older adults with disabilities. Hierarchical regression helps better understand the determinants of life satisfaction. However, it does not precisely reveal the directions of associations between the dependent and independent variables. Therefore, we recommend a longitudinal study to shed light on the underlying mechanisms of relationships surrounding life satisfaction.

As a point of concern, we should mention that the Abu Dhabi research did not result in the significance of many important life satisfaction determinants for older people with disabilities. For example, the frequency of physical exercise and the involvement with spiritual groups were not significantly associated with the life satisfaction of older people with disabilities. One explanation for such insignificance could be the smaller sample size than expected.

Future research, therefore, should involve efforts to encourage the participation of older adults with disabilities.

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