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The contribution of mastery to mental health and purpose in life among female veterans with disabilities in Israel

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ABSTRACT

Self-report questionnaires assessing mental health, purpose in life (PIL) and mastery were administered to 61 female veterans with disabilities (FVWD) and compared 72 demographically matched women in control group without disabilities to learn about use of personal resources in promoting well-being and resilience. Age range was 20–82, average age was 48.87. Data were collected in Israel. FVWD reported significantly lower levels of mental health, PIL, and mastery than the comparison group. Group affiliation moderated association between mastery and mental health, and between mastery and PIL. For FVWD, higher mastery was associated with lower mental health and PIL.

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Background

Upon graduation from high school, the majority of Israeli women are drafted to serve 2 years in their country's armed forces, known as the Israeli Defense Forces (IDF). Women comprise approximately one-third of the IDF service members, where they serve in both senior and combat positions with Ground, Navy, and Air Forces (IDF Blog, 2016). As a result of combat, training, or traffic accidents, however, some female soldiers in all countries sustain psychological and/or physical disabilities.

Given that dozens of female soldiers in Israel leave their military service with a physical or psychological disability, it is of interest as to what factors can contribute to promoting their resilience. Ideally, international and interdisciplinary scholars and practitioners will be able to apply the findings of these Israeli veterans to females with disabilities in their country's military. Indeed, despite women being in the minority of the total disabled veteran population, comprising 6% of disabilities in the IDF (Koren, Bergman, & Katz, 2015) and about 16% of the total population of women veterans (National Center for Veterans Analysis and Statistics,

2011), not enough is known about this unique cohort (Koren et al., 2015). Given that disabled women experience unique challenges (Amara, 2014), more research is needed to understand how female veterans use personal resources to promote well-being and resilience in light of their disability.

It is important to note that the term "disability" is a vast umbrella term that includes various types of impairments (Leonardi, Bickenbach, Ustun, Kostanjsek, & Chatterji, 2006). The researchers conceptualize disability according to the Biopsychosocial Model, (Barnes, 1991; McConachie et al., 2006) arguing that disability is not an individual problem, but is rather a multi-dimensional concept which is the product of the social and physical environment (Forsyth et al., 2007; Shakespeare, 2006; Lutz & Bowers, 2007). The Biopsychosocial Model views disability as the interaction between mental and physical health conditions and both personal and environmental factors (International Classification of Functioning, 2001).

In order to learn more about how female veterans with disabilities (any individual or combination of physical or mental impairment) use personal resources to promote well-being and resilience in light of their disability, in the present study, we aim to shed light on their psychological adjustment (mental health and purpose in life (PIL)) alongside personal resources (mastery), by comparing FVWD and female veterans without disabilities in regard to these variables. In addition, we sought to examine the contribution of mastery to mental health and purpose of life of female veterans with disabilities.

Mental health

Mental health includes emotional, psychological, and social well-being (National Institute of Health, 2016) and is related to "the ability to cope with daily stressors, and to operate in an efficient and productive manner" (World Health Organization, 2014). Female veterans are more at risk for mental health issues compared to their male counterparts, experiencing higher rates of depression, PTSD, and alcohol use disorders (Maguen, Ren, Bosch, Marmar, & Seal, 2010; Freedy et al., 2010; Bean-Mayberry et al., 2011), that could last even 30 years after their return from combat (Kaiser, Spiro, Lee, & Stellman, 2012).

Moreover, women with physical disabilities report higher rates of depression and stress (Nosek & Hughes, 2003), particularly compared to the prevalence of depression among women in the general population as seen in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). The DSM is an internationally accepted classification and definition of mental disorders that is used in Israel and abroad, and was referred to in this study. Furthermore, the intensity of stress among women with disabilities was higher than the average intensity of stress experienced by women in the general population (Hughes, Taylor, Robinson-Whelen, & Nosek, 2005).



Purpose in life

The concept of PIL originates from Dr. Viktor Frankl's Theory of Logotherapy, which was developed as a system for understanding how people create and maintain purpose or meaning in their lives (Frankl, 1959, 1967). PIL can play an important role in individuals' mental health and quality of life (Frankl, 1959, 1967; Maddi, 1967; Maslow, 1968, 1971; Yalom, 1980). However, various researchers emphasize different aspects of the definition, such as investment of time and energy into the achievement of a cherished goal (Ryff & Singer, 1998), a sense of significance beyond the trivial or momentary, or as the coherence that transcends chaos (King, Hicks, Krull, & Del Gaiso, 2006).

Stressful experiences often motivate individuals to search for personal meaning in order to adapt to the experiences and persist toward self-concordant goals (Kashdan & McKnight, 2009). Thus, PIL can serve as a resilience factor, it can protect an individual against the development of psychopathologies such as PTSD and depression that can occur after stress or trauma exposure, or even the repeated minor stresses experienced over the course of a lifetime (Schaefer et al., 2013).

It has been argued that the meaning people make of their disability-related experiences and the life stories they construct around them make an important contribution to their physical and social functions (Lee & McCormick, 2002). Low PIL scores have been found to be related to various diseases such as first episode psychosis (Turner et al., 2007), AIDS (Lewis, Erlen, deVito Dabbs, Breneman, & Coo, 2006), spinal cord injuries (Krause, Broderick, & Broyles, 2004; Thompson, Coker, Krause, & Henry, 2003), and Alzheimer's disease (Boyle, Buchman, & Bennett, 2010). However, this association has not been researched in terms of disabilities that occurred during an individual's army service.

Mastery

Mastery is defined as the individual's actual or perceived control over significant life circumstances (Caplan, 1981; Daniel, Brown, Dhurrkay, Cargo, & O'Dea, 2006; Pearlin & Schooler, 1978). The emotional state of mastery is associated with improved psychological well-being (McKinley, Brown, & Caldwell, 2012).

The sense of mastery, along with other positive qualities (e.g. optimism, vitality, positive affect), can assist in one's coping with a disability and may be associated with lower rates of mortality from all causes (Fredrickson & Levenson, 1998; Surtees, Wainwright, Luben, Khaw, & Day, 2006). By contrast, one's perception of having insufficient control in life can have a negative influence on mortality (Surtees et al., 2006). It has been argued that through the development of mastery and efficacy, people with a chronic illness or disability may be able to more effectively understand and manage the stressors they face in their lives (Lee & McCormick, 2002). Nevertheless, the association between sense of mastery and PIL is lacking in the existing literature.



The present study

It is hypothesized that the levels of mental health, PIL, and mastery of FVWD will be lower than those of female veterans without disabilities. Second, we expect to find positive associations between mastery, mental health, and PIL. Finally, we wanted to examine whether the association between mastery and mental health as well as between mastery and PIL would be moderated by group (FVWD vs. comparison); that is, the association between mastery and mental health and between mastery and PIL would be different in the two groups.

Method

Participants and procedure

The study participants were comprised of 61 female veterans with disabilities in the research group and 72 female veterans without disabilities in the comparison group. The University Ethics Committee of the authors' University approved the study. Data collection of the women in the study group was performed under the guidance of the first author of this paper and a member of the IDF Disabled Women Veterans Forum. Questionnaires were distributed to women who were recognized by Israel's IDF Disabled Veterans, meaning that their disability occurred during their military service.

Questionnaires were distributed to the women at IDF veterans-with-disabilitiescenters and during IDF veterans-with-disabilities-events, and the women who received questionnaires then passed them on to other FVWD. The women who chose to participate in the study signed an informed consent form, and questionnaires were returned anonymously by mail in an envelope. The participants were selected via a non-probability sampling, using a convenience sample, since it would be impossible to have access to all FVWD in Israel.

In all, 90 questionnaires were distributed, of which 71 were returned. In the end, 61 questionnaires were used in the study, as 10 of them had been filled out only partially and were therefore determined to be incomplete. Women who shared that they had a physical and/or emotional disability were invited to be a part of the veterans-with-disabilities group. A second group was then created of veteranswithout-disabilities who matched the study group in terms of socio-demographic variables. The PI distributed questionnaires to participants, encouraging them to distribute questionnaires to their peers via the snowball method of data collection.

Data collection for the comparison group was conducted via snowball convenience sample method. The goal was to reach Hebrew-speaking women who were similar in background characteristics to the women in the study group. These questionnaires were also put in envelopes and returned anonymously by mail. Eighty questionnaires were distributed, of which 78 were returned. As six of those questionnaires were only partially completed, a total of 72 were finally used in the research.

Measures

Demographic questionnaire. This questionnaire consisted of the women's background variables, including age, country of birth, family status, employment status, years of education, existence of children, and number of children. The women in the study group were also asked additional questions, including some regarding variables related to the objective characteristics of their injury, such as type and duration.

Mental health inventory (MHI). This questionnaire examines individual's feelings of well-being and psychological distress during the past month (Veit & Ware, 1983). The current study used the shortened version of the questionnaire (Izsak, 2002 (which includes 15 items, nine of which examine mental (psychological) distress and six examine mental health. Participants were asked to rate their answers on a six-point Likert scale, ranging from 1 (never) to 6 (always). After reversing the items that expressed negative feelings (questions 4, 5, 6, 9, 10, 11, 12, 14, and 15), a mental health score was calculated by summing the participant's estimates; the higher the score, the better the mental health. The shortened version had internal reliability, and Cronbach's alpha ranged between 0.84 and 0.95. In the current study, Cronbach's alpha reliability was 0.95.

Purpose in life questionnaire (PIL). This questionnaire was used to measure the degree to which an individual has a sense of meaning or PIL (Crumbaugh & Maholick, 1964). The questionnaire includes 20 questions that are answered on a seven-point Likert scale, ranging from 1 (low purpose) to 7 (high purpose). The average overall score ranged from 1 to 7 points, indicating the strength of the individual's sense of meaning of life. In the present study, 7 of the 20 questions were removed because of their lack of relevance to the current study, still the alpha reliability was 0.92. Removing items did not affect the psychometric properties of the measure.

Self-mastery questionnaire. This questionnaire refers to the sense of self-mastery in the individual's life (Pearlin & Schooler, 1978). The questionnaire includes seven items relating to feelings and actions. Participants were asked to rate items on a five-point Likert scale, ranging from 1 (fully agree) to 5 (strongly disagree). After reversing two items (questions 6 and 7) which expressed a positive sense, the grade was given by calculating average based on all the items. A high score indicates a high sense of mastery. In the current study, Cronbach's alpha reliability was found to be 0.89.

Statistical analysis

First, a MANOVA test was conducted in order to compare FVWD with the comparison group, in regard to the three research variables: mental health, PIL, and mastery. Second, we assessed the correlations between the study variables. Finally, in order to examine the contribution of mastery to women's mental health and PIL, we performed two linear hierarchical regressions, each consisting of three steps. In each of the two regressions, the first step included the sociodemographic variables of age, education, family status, employment status, the existence of children, and group. In the second step, we entered the mastery variable. Finally, in the third step, we entered the interaction of group and mastery, in order to fully examine the moderating contribution of mastery.

Results

Participants were diagnosed with three types of disabilities: 12.7% with a mental disability, 64.8% with a physical disability, and 19.7% with both physical and mental disabilities. The disability level of the majority of women (85%) ranged from a low level to a medium level (ranging from 10% to 60%). According to the Israeli Defense Ministry, any number over 50 is considered a "high" level of disability.

As seen in Table 1, there were no significant differences between the study group and the comparison group. The majority of the women in the sample were born in Israel (82.6%), and about half of them were married (51.1%). The age range was 20-82, and the average age was 48.87 (SD = 14.70). Most of the women had children (78.9%), the number of children ranged from zero to six, and the average number of children was 2.27 (SD = 1.55). Over two-thirds of the women were employed (71.4%). The number of years of education ranged from eight to 20, and the average was 14.06 (SD = 2.20).

A MANOVA analysis, with group as the independent variable, and mental health, PIL and mastery as dependent variables, revealed an overall significant effect $[F(3,129) = 70.07, p < .00, \mu = 0.99, power = 1]$. Table 2 presents the means, standard deviation, and the multivariate test results of the study variables for both the FVWD group and the comparison group.

Table 1.	Frequencies	and percent	ages of dem	nographic	variables.
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	FVWD group		Comparis		
	Prevalence	Percentage	Prevalence	Percentage	chi square
Country of birth					
Israel	52	86.7%	57	79.2%	1.27
Other	8	13.3%	15	20.8%	
Family status					
Married	26	42.6%	42	58.3%	3.26
Unmarried	35	57.4%	30	41.7%	
Employment status					
Employed	33	54.1%	62	86.1%	16.58
Not employed	28	45.9%	10	13.9%	
Children					
Yes	48	78.7%	57	79.2%	0.00
No	13	21.3%	15	20.8%	
	Mean	SD	Mean	SD	Τ
Age	51.09	12.76	47.00	16.02	1.61
Number of children	2.80	1.09	3.02	1.09	1.01
Years of education	13.93	2.38	14.17	2.04	0.61

Table 2. Means and SDs by study groups	Table 2.	Means and	SDs by	study	group
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Variables	M (SD)	M (SD)	Comparison group <i>F</i>	FVWD group ル	Power
Mental health	3.94 (1.00)	4.46 (.68)	12.29**	0.09	.94
Mastery	2.51 (.89)	4.01 (.62)	128.39***	0.50	1.00
PIL	5.25 (1.14)	6.00 (.66)	21.95***	0.14	.97

p < .05, p < .01, p < .01, p < .001.

As can be seen in Table 2, there were differences between the two groups among all three variables. Women with disabilities reported a lower level of mental health, less PIL, and less sense of mastery than did the comparison group.

Table 3 presents the correlations between the study variables. As can be seen, in both groups, all three correlations were significant. In the study group, the correlations between mastery and mental health and between mastery and PIL were negatively significant. Thus, a higher level of mastery was associated with lower mental health and PIL among women with disabilities. However, in the comparison group, the correlations between mastery and mental health and between mastery and PIL were positive. Thus, a higher level of mastery was associated with better mental health and PIL among women without disabilities.

Two three-step, hierarchical linear regressions were conducted to examine the unique and combined contributions of group and mastery to the women's mental health and PIL. Table 4 presents the b, SD b, the Beta coefficients, and the Adjusted R^2 of each of the three steps for each one of the regressions.

Mental health. The total set of the independent variables explained 59.3% of the variance (F(6,132) = 5.85, p = .00). As can be seen in Step 1, the background variables explained 21.8% of the variance. Only group (b = 0.35, p < .001) and age (b = .34, p < .005) contributed significantly to mental health. FVWD reported lower mental health than women without disabilities. Also, older women reported better mental health than younger women. Mastery was entered in Step 2, and accounted for another 6.3% of the variance. In this step, mastery was found to contribute to mental health, significantly and negatively

Table 3. Intercorrelations between study variables for women with and without disabilities.

	Women with disa	abilities ($n = 61$)	
(1) Mental health	_	0.676**	-0.777^{**}
(2) PIL		_	-0.70**
(3) Mastery			_
	Women without di	isabilities ($n = 72$)	
(1) Mental health	_	0.62**	0.407** 0.526**
(2) PIL		_	0.526**
(3) Mastery			_

p < .05, p < .01, p < .01, p < .001.

Table 4. Hierarchical regression coefficients explaining the variance in mental health and PIL.

			Men	tal health				PIL	
Step	Variables	ь	SE (B)	β	Adj R ²	b	SE (B)	β	Adj R ²
1					0.18***				0.19***
	Group	0.62	0.15	0.35***		0.71	0.17	0.36***	
	Family status	0.22	0.17	0.12		0.42	0.18	0.22*	
	Children	-0.18	0.26	-0.08		-0.16	0.29	-0.07	
	Education	0.03	0.03	0.08		0.08	0.04	0.17*	
	Work status	-0.20	0.17	-0.10		-0.03	0.19	-0.02	
	Age	0.02	0.01	0.37**		0.01	0.01	0.13	
2	•				0.24**				0.24**
	Group	1.06	0.20	0.60***		1.15	0.22	0.58***	
	Family status	0.15	0.16	0.09		0.36	0.18	0.18	
	Children	-0.10	0.25	-0.04		-0.08	0.29	-0.03	
	Education	0.02	0.03	0.05		0.07	0.03	0.15	
	Work status	-0.16	0.17	-0.08		0.00	0.19	0.00	
	Age	0.02	0.01	0.27*		0.00	0.01	0.07	
	Mastery	-0.30	0.09	-0.37^{**}		-0.30	0.10	-0.33^{**}	
3	,				.57***				0.52***
	Group	0.93	0.15	0.53***		1.02	0.17	0.51***	
	Family status	-0.11	0.12	-0.06		0.09	0.15	0.04	
	Children	0.14	0.19	0.06		0.16	0.23	0.07	
	Education	0.02	0.02	0.04		0.06	0.03	0.14*	
	Work status	-0.17	0.13	-0.09		-0.01	0.15	-0.00	
	Age	0.02	0.00	0.26**		0.00	0.01	0.07	
	Mastery	-0.82	0.09	-0.99^{***}		-0.85	0.10	-0.91 ^{***}	
	$Group \times mastery$	1.39	0.14	0.90***		1.45	0.17	0.84***	

p < .05, p < .01, p < .01, p < .001.

(b=-0.367, p < .001), in that women with higher mastery reported lower mental health. In Step 3, the interaction of group and mastery was entered and this step explained another 31.2% of the variance. In this step, the interaction of group and mastery was found to contribute significantly (b=0.897, p < .005) to mental health. Probing this interaction revealed that group has a moderating role, such that while for women in the study group, a high level of mastery was associated with a lower level of mental health (b=-0.82, p < .001), for women in the comparison group, a high level of mastery was associated with a higher level of mental health (b=0.57, p < .001).

PIL. The total set of the independent variables explained 55.3% of the variance (F(6,132) = 6.28, p = .00). As can be seen in Step 1, the background variables explained 23% of the variance. Group (b = 0.36, p < .001), family status (b = 0.22, p < .05) and years of education (b = 0.17, p < .05) were found to contribute significantly to PIL. FVWD reported less PIL than women in the comparison group. In addition, married women reported more PIL than unmarried women. Finally, women with more years of education reported greater PIL. Mastery was inserted at Step 2, and this step explained 5.1% of the variance. Mastery (b = -0.33, p < .005) was found to contribute significantly and negatively to PIL, in that women with higher mastery reported less PIL. The interaction of group and mastery was inserted at Step 3, and this step explained 27.3% of the variance. The interaction of group and mastery was found to contribute significantly and positively (b = 0.84, p < .005)



p < .001) to PIL. Probing this interaction revealed that group has a moderating role, such that while for the FVWD group, a high level of mastery was associated with a lower level of PIL (b = -0.85, p < .001), for women in the comparison group, a high level of mastery was associated a higher level of PIL (b = 0.61, p < .001).

Discussion

As expected, the findings indicated that FVWD reported significantly lower levels of mental health, weaker PIL, and lower sense of mastery than women in the comparison group. As there is a paucity of literature on this topic, it is of note that the findings here support earlier studies done in the field (Rintala, Hart, & Fuhrer, 1996; Nosek & Hughes, 2007; Skinner, 2000; Schieman, Scott; Turner, Heather, 1998; Skinner, Sullivan, & Tripp, 1999). Ideally, researchers and clinicians can use these findings on Israeli women to further conceptualize how female veterans use personal resources to promote well-being and resilience in light of their disability with populations both within Israel and abroad.

A disability acquired in young adulthood gives rise to a whole host of physical and symbolic losses that oscillate over time and require an ongoing process of adjustment. These losses along with the daily hardships that go with them can disrupt a person's self-definition, life goals, and sense of meaning (Pakenham, 2008). The woman may feel that her disability impacts upon her sense of self, as well as lead to others having a negative view of her (De Klerk & Ampousah, 2003). The newly acquired disability can be accompanied by a sense of loss of autonomy and mastery, which can translate into an individual's decreased sense of control over his/her life.

With regard to the second aim of our study, the findings revealed significant positive correlations between mastery, mental health, and PIL. Our findings are compatible with previous studies documenting a relationship between these variables (e.g. Galek, Flannelly, Ellison, Silton, & Jankowski, 2014; Rodin, Timko, & Harris, 1985; Steger, 2012). The association between mastery and PIL has been lacking in the existing literature. As mentioned previously, Viktor Frankl's Logotherapy (Frankl, 1959, 1967) wrote about changing attitude toward the circumstances of one's life as a one way to achieve a sense of control. More recently, Park and Folkman (1997) proposed the meaning-making model, which has since been further developed by Park (2010). The meaning-making model considers two levels of meaning: global meaning and situational meaning. Global meaning refers to an individual's broad beliefs, goals, and sense of purpose, while situational meaning refers to meaning that derives from a specific occurrence. Both levels of meaning are involved in coping with stressful experiences, and the extent to which appraised meaning is discrepant with global beliefs and goals create distress. Psychological well-being is an entity comprised of many variables including mental health, PIL, and mastery. Therefore, it is easily understood how these variants might correlate with each other in an individual's attempt to assess his/her well-being (McKinley et al., 2012; Schaefer et al., 2013).

Finally, we postulated that the association between mastery and mental health and PIL would be moderated by group. We expected that among women with a high level of mastery, the association between disability and mental health, as well as between disability and PIL, would be weaker in comparison to the parallel correlations among women with low mastery. In line with initial hypotheses, a higher mastery score was associated with higher mental health and PIL for women without disabilities. However, when it came to the FVWD group, results differed from initial hypotheses. Surprisingly, and contrary to our hypothesis, higher mastery was associated with *lower* mental health and PIL in the FVWD group.

Different studies have indicated the positive effect of mastery on mental health. According to Moghaddam, Fathali, Studer, & Charles (1998), people are motivated to control their world, and in particular, to control future events. The tendency to control can have positive and negative consequences. Keeton, Perry-Jenkins, & Sayer (2008) suggested that having a sense of control is a protective cognitive factor for individuals who are potentially at risk for depression and anxiety during a difficult life transition. According to Krokavcova and colleagues (2008), mastery refers to the extent to which patients see themselves as being in control of the forces that affect their lives. It may play an important role in perceived health status and the ability to see one's well-being in a positive light.

However, mastery can also have a negative effect on a person's mental health. Research has shown that people with a higher sense of control exhibit a greater mean pressure increase during stress and a decreased drop of arterial pressure during pain stimulus, when compared to those with lower control scores. These results suggest that individuals high in control may be more susceptible to the effects of acute stress (Younger, Finan, Zautra, Davis, & Reich, 2008). Ross & Sastry (1999) reviewed several studies demonstrating that too much control can also be problematic. Thus, efforts to change or control an event may be moderated by its perceived or actual controllability.

Among FVWD, much effort is invested in adjusting to and coping with the novel situation of their newfound disability. Mastery requires the dedication of a vast amount of psychological resources. It is therefore possible that a new and sudden disability, along with the desire to maintain a sense of mastery, consumes so much emotional energy that there is little left over for well-being and PIL. The fact that FVWD had low mastery levels might suggest that these women came to terms with their new situation, and their decreased sense of control and stress may in turn have enhanced their mental health and PIL.

Limitations of this study include a relatively small sample size; since the sample was a convenience sample and it was difficult to reach a large number of IDF FVWD, it is complicated to generalize from the current results to the entire population of IDF FVWD. Second, ideally this sample would have been large enough to analyze differences among the study population depending on what constituted their disability (mental health, physical health, or combination of mental and physical disability). Unfortunately, there were not enough participants in each group to



analyze differences among them. Clearly, those without mental health disability would be expected to have higher mental health ratings than those with disabilities. However, examining differences between the groups could be an area of study for future research. Finally, we employed a cross-sectional design. Therefore, making inferences about causality should be eliminated.

The current study has important implications, not least of which is that it sheds light on a unique population which to date has been severely overlooked. Their disability also occurs at the age of 18-20, at the entrance of adulthood and independence and typically prior to marriage and children.

Implications for practice and policy

The results shed light on the psychological factors and the unique processes among female veterans with disabilities. Taking these factors into consideration is essential in understanding the needs of female veterans and developing more effective interventions.

There is a paucity of research on military trauma outcomes and treatments for female veterans, despite evidence that female veterans experience substantial disability ranging from gynecological, physical, and mental health issues. Further research and policy guiding attention to female veterans' health issues is needed (Rivera & Johnson, 2014). Specific focus should be given to women who became disabled during mandatory, constitutional, or voluntary military service.

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