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The relationship between the meaning in life and the subjective vitality in people with disabilities

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Abstract

The link between the meaning in life and the subjective vitality is not clear in people with disabilities. The aim of the research here presented was to investigate the main effects and the interaction effects of the presence of the meaning in life (PML) and search for the meaning in life (SML) on the subjective vitality (SV) in people with disabilities. An online cross-sectional study was carried out on a sample of 1018 individuals with disabilities in the U.S. Participants completed the meaning in life and subjective vitality measures. Hierarchical regression analysis showed that people with acquired and progressive disabilities had lower vitality compared to people with congenital disabilities. Moreover, the presence of and search for the meaning in life had positive main effects on subjective vitality, highlighting that the search for meaning does not lead to a decrease in vitality. A significant but weak negative correlation

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was also found between the presence of and search for the meaning in life. The positive effect of the presence of the meaning in life increased with a decrease in the level of search for the meaning in life. These findings further indicate that individuals with disabilities who cope with challenging life experiences may foster a balance between the presence of the meaning and search for the meaning in life and stabilize their meaning system.

Keywords: Meaning in life; Search for the meaning in life; Presence of the meaning in life; Subjective vitality; People with disabilities.

1. Introduction

61 million adults with disabilities live in the US and about one in four (26%) adults have some type of disability (Okoro, Hollis, Cyrus, & Griffin-Blake, 2018). People with disabilities (PwD) are not a homogeneous but unique group and often face different barriers in their daily lives. Depending on the type and form of disability, PwD may find themselves hindered from participating in various activities, resulting in a negative effect of their vitality and, thus, well-being.

Vitality studies have been based on the self-determination theory, which explains the psychological needs that promote motivation and well-being (Ryan & Deci, 2000). The source of energy is from the internal and it is self-directed (Ryan & Frederick, 1997; Bostic, McGartland Rubio, & Hood, 2000). Vitality is the condition of having positive emotions, energy and feeling alive (Greenglass, 2006). Moreover, subjective vitality (SV) is an indicator of psychological well-being (e.g., relatedness, autonomy, competence; Ryan & Frederick, 1997; Kasser & Ryan, 1999) and physical well-being (e.g., pain, somatic symptomatology; Kasser & Ryan, 1999; Ryan & Deci, 2000). Previous studies on individuals without disabilities revealed that SV is positively related to self-actualization, self-esteem, perceived physical ability, conscientiousness, happiness, satisfaction with life, psychological and social well-being (Ryan & Frederick, 1997; Salama-Younes, 2011; Akın, 2012), presence of the meaning in life (PML; McMahan & Estes, 2012), the meaning in life (ML; Ju, 2017), and negatively related to psychopathology, anxiety, depression, neuroticism and negative effects (Niemiec, Lynch, Vansteenkiste, Bernstein, Deci, & Ryan, 2006; Salama-Younes, 2011; Fischer, 2018).

Meaning is one of the main motives of human experience and is a sign of healthy psychological functioning, and related to cope with illness, stress (Jim & Andersen, 2007), quality of life (Krause, 2007) and well-being (Brassai, Piko, & Steger, 2011). Moreover, a person's primary concern is to seek a meaning in life (Frankl, 2000). It is a driving force behind a life of thriving (Bailey & Fernando, 2012). Furthermore, the link between well-being and ML is strong. Previous studies have shown that ML is positively related to work enjoyment, happiness, life satisfaction (Debats, van der Lubbe, & Wezeman, 1993) and psychological well-being (Brassai *et al.*, 2011).

ML has two main domains of measurement: the PML and the search for the meaning in life (SML; Steger, Frazier, Oishi, & Kaler, 2006). PML refers

to the sense that one's life is purposeful and valuable, and SML means the sense of one's engagement and motivation in the effort to find or establish ML. PML is negatively associated with depression, neuroticism and anxiety and positively associated with well-being, intrinsic religiosity, agreeableness and extraversion (Steger *et al.*, 2006). Results of a meta-analysis conducted on 147 individuals revealed the strong link between PML and subjective well-being (r = .40), and the association was even larger in life satisfaction in cross-sectional studies (Li, Dou, & Liang, 2021). On the other hand, SML is positively associated with depression, neuroticism, anxiety, religious quest, rumination and negative perceptions, and negatively associated with future time perspective, dogmatism and well-being (Steger, Kashdan, Sullivan, & Lorentz, 2008). The link between SML and subjective well-being was small (r = -.12) and interestingly, SML was positively associated with well-being in collectivistic cultures (Steger, Kawabata, Shimai, & Otake, 2008; Lin, Wang, & Li, 2021).

Even though, PML has been widely studied, SML has not attracted much notice in the ML literature (Steger, Oishi, & Kashdan, 2009). A handful of studies reported that people who search for the meaning, generally have less life satisfaction (Steger *et al.*, 2006; Steger, Kashdan *et al.*, 2008a). However, other studies investigated the interaction between the two separate constructs: PML and SML. These studies revealed the positive moderating effects of PML on the link between SML and well-being (Cohen & Cairns, 2012; Fischer, 2018), and between SML and life satisfaction (Park, Park, & Peterson, 2010); and vice versa, the negative moderating effects of SML on the link between PML and life satisfaction (Steger, Oishi, & Kesebir, 2011; Grouden, 2014). Additionally, a few studies indicated of a non-significant interaction between PML and SML (Grouden, 2014; Lin *et al.*, 2021). Notably, some studies reported the effect size information of the interaction and found very small effects (Park *et al.*, 2010, B = .31, p = .001, ΔR^2 = .002, N = 731; Steger *et al.*, 2011, Study a, β = .20, p = .001, ΔR^2 = .003, N = 150 and Study b, β = .16, p = .001, ΔR^2 = .003, N = 121; Fisher, 2018, β = .01, p < .007; N = 240) between PML and SML for life satisfaction. Regardless of these very small effect sizes, studies further examined the interaction in-depth with a simple slope analysis. A few studies revealed that individuals who have a low level of PML may have a low or a reasonable well-being (Cohen & Cairns, 2012) and life satisfaction (Steger *et al.*, 2011) when they have a high level of SML. Yet, all these studies were limited to the life satisfaction of people without disabilities.

Having a disability (either having a body with a physical injury or an impairment in some functions) may affect that person in a negative way and may let the person lose his/her self-respect (Kim & Kang, 2003). Indeed, previous studies showed that depression and life stress are positively associated with disabilities and other chronic conditions (Steptoe, Deaton, & Stone, 2015). Likewise, symptoms of depression (Gorbea, 2000) and life dissatisfaction among PwD were higher than people without disabilities, regardless of whether PwD require assistance or not (AAHD, 2008). Hence, disabilities have been shown to be associated with a moderate to a large drop in subjective well-being as well as with a decrease in life satisfaction according to the severity of the disability (Lucas & Chopik, 2021). Psarra and Kleftaras (2013) also found a negative link between depression and ML in PwD. Yet, a few studies found that congenital onset generates more life satisfaction compared to acquired disabilities (Bogard, 2014), due to a higher acceptation of their conditions from birth (Li & Moore, 1998).

Considerable research has been focused on ML in people without disabilities; however, ML for PwD has been under-studied. The few studies conducted have reported of the negative relationship between disabilities and life satisfaction (Bogart, 2014) and the negative correlation between depression and ML in PwD (Psarra & Kleftaras, 2013). Moreover, none of this research examined the relationships between ML and the indicators of well-being, or considered the two different constructs of ML: SML and PML. Hence, there is a lack of research evaluating the effects of SML, PML and their associations on vitality, which is an important indicator of well-being. Thus, the primary goal of the current study was to investigate the moderating role of SML on the relationship between PML and vitality in PwD. A further aim was to add information in the literature concerning the link between disability types and well-being. Therefore, this research tested three hypotheses. First, people with progressive and acquired disabilities would have lower SV than those with congenital disabilities. Second, PML would be a positive predictor and SML would be a negative predictor of SV among PwD. Third, SML would attenuate the relationship between PML and SV.

2. Methods

2.1. Design and participants

Research data was collected in compliance with the regulations and was approved by the Institutional Review Board of the affiliated university. The research was carried out online with PwD from the U.S. Before the data collection, sample size was calculated by G*Power and the minimum total sample size was found at 792 for directional hypothesis in moderation analysis (f^2 = .02, α = .01, β = .05 and statistical power = .95). To access the respondents, an invitation with a link to the participation to the survey was e-mailed to the 1095 disability organizations (i.e., centers for independent living, accessibility and disability services of states and universities, associations for mobility, vision and hearing impairments, and other specific organizations dealing with congenital, progressive and acquired disabilities). A total of 221 organizations responded and accepted to distribute the survey link to the members of their communities. A total of 1084 individuals with disabilities, which was higher than the required sample, responded to the questionnaire. The survey was fully anonymous, and no identifiable information was collected from participants, such as their IP addresses, locations, or the organization they were involved with. Thus, the distribution of respondents according to states was unknown. At the end of the research period, 66 surveys were excluded due to an excess in missing values (i.e., missing more than 50% of an entire questionnaire) or to participants who chose to not complete one or more measurement tools. Hence, 1018 valid surveys were entered for data analysis.

2.2. Measures

2.2.1. Subjective Vitality Scale

Vitality was measured by the SV scale of Ryan and Frederick (1997), a seven-item scale with one dimension assessing the energy of individuals in feeling alive and alert (e.g., 'I feel alive and vital'). Some research showed that removing a negatively worded item from the scale works even better than the original (Bostic *et al.*, 2000; Ryan & Bernstein, 2004). Therefore, a six-item instrument was chosen due to well validity and reliability scores. Participants answered on a 7-point scale, ranging from 1 = Not at all true to 7 = Very true. In our study, Cronbach's alpha coefficient for the current

study was .92, omega reliability was .92 and ORION marginal reliability was .96.

2.2.2. Meaning in Life Questionnaire

This study employed the six-item scale of Steger and Samman (2012) who measured the meaning in life with assessments that life was purposeful and meaningful. It has two factors: presence of meaning (e.g., 'I have discovered a satisfying life purpose') and search for meaning (e.g., 'I am always looking to find my life's purpose'). This questionnaire was chosen because it has no multicollinearity with similar positive constructs (Steger *et al.*, 2006). However, some studies have reported that the reverse coded item of PML ('my life has no clear purpose') has a poor fit in some models (Gongora & Solano, 2011; Schutte, Wissing, Ellis, Jose, & Vella-Brodrick, 2016; Hallford, Mellor, Cummins, & McCabe, 2018; Chika Chukwuorji, Ekpedoho, Ifeagwazi, Iorfa, & Nwonyi, 2019; Naghiyaee, Bahmani, & Asgari, 2020). Thus, Schutte and colleagues (2016) proposed the elimination of this item. Therefore, a short form was used due to well validity and reliability scores. Participants answered on a 7-point scale ranging from 1 = Absolutely untrue to 7 = Absolutely true. In our study, Cronbach's alpha coefficients were .93 for PML and .83 for SML; omega reliabilities were .93 for PML and .84 for SML; ORION marginal reliabilities were .95 for PML and .94 for SML.

2.3. Data analysis

First, descriptive statistics and normal data distribution were calculated. Then, the exploratory factor analysis, within a confirmatory factor analysis framework, was performed by adding the benefits of fit indexes and verifying the number of dimensions underlying a set of variables. Factor 9.2 was a comprehensive software for fitting exploratory and semi-confirmatory factor analysis (Lorenzo-Seva & Ferrando, 2013). Due to the non-normal distribution of items and polychoric structure, Robust Unweighted Least Squares (RULS) were performed to examine the model and validity of the scales in the Factor 9.2. program. Because of non-orthogonality, promin rotation was chosen for the maximization of factor simplicity. It was conducted by using bias-corrected and accelerated bootstrap with 1000 samples. Then, Cronbach's alpha, McDonald's omega and ORION marginal reliability coefficients were assessed. The mean scores of variables were used in the analysis. Finally, a series of linear hierarchical multiple

regression analyses was performed to explore the main and interaction effects of PML and SML on SV. Confidence intervals were set to 95 % and *p*-values ≤ .05 were considered statistically significant. The missing data of independent variables comprised less than .05, and listwise deletion was applied for data analysis. The assumptions underlying the interpretations of the linear regression analysis were checked, and a three-stage hierarchical regression analysis was then conducted. The first stage included demographic variables (gender, employment, education, age and disabilities). The second stage entered the variables of PML and SML. The last stage included the interaction of PML and SML. Continuous variables were centered to eliminate the multicollinearity (Aiken, West, & Reno, 1991). Simple slope analyses were performed to evaluate the association between PML and SV at low (−1*SD*), average (*M*) and high (+ 1*SD*) levels of SML. To find out the best fitting regression model, Akaike's information criterion (AIC), Schwartz's Bayesian information criterion (BIC), the root mean squared error (RMSE) and *R* squared values were assessed. Jamovi 2.3.3 was used for descriptive statistics, reliability, correlation, regression and moderation analysis (The Jamovi Project, 2022).

3. Results

The study sample was composed of 434 individuals with acquired disabilities, 290 people with congenital disabilities and 236 people with progressive disabilities. Most participants were females, adults, unemployed and graduated from college. The profile and characteristics of the participants were given in Table 1.

Table 1 – *Numerical and percentage dispersion of sample profile*

Variables	*n*	*%*
Gender		
Female	588	58.2
Male	422	41.8
Total	1010	100.0
Age		
Young adults aged (18-34)	170	18.6
Adults aged (35-60)	505	55.3
Elderly people aged (61 and over)	239	26.1
Total	914	100.0

Education		
Primary/Secondary	137	13.6
Undergraduate	304	30.2
Graduate	357	35.5
Postgraduate	207	20.7
Total	1005	100.0
Employment status		
Unemployed	436	43.9
Part-time	399	40.1
Employed	159	16.0
Total	994	100.0
Disability types		
Congenital disabilities	290	30.2
Progressive disabilities	236	24.6
Acquired disabilities	434	45.2
Total	960	100.0

Mardia's (1970) test for kurtosis showed a significant kurtosis level ($p < .001$) and the structure of the scales was polychoric. The RULS method was conducted to obtain accurate parameter estimates and model fit statistics for polychoric correlations in factor analysis. Bartlett's test of sphericity was statistically significant (x^2 (55) = 8489.1, $p < .001$) while the KMO was .86. The three-factor (SV, PML and SML) model explained .82 of the total variance. All the factor loadings were above .67. Minimum fit function and insignificant chi-square statistics (x^2 (25) = 22.988, $p > .579$) showed the goodness of the model (RMSEA = .067; RMSR = .022 and weighted RMSR = .036). Moreover, all measures achieved good cutoff values above the .95 (NNFI = .983; CFI = .992; GFI = .999; AGFI = .997; GFI without diagonal values = .998; AGFI without diagonal values = .996).

Table 2 – *Means, standard deviations and correlations of variables*

Variable	*M*	*SD*	SV	PML	SML
SV	5.27	1.23	—		
PML	5.37	1.47	.68***	—	
SML	4.56	1.60	.13***	.01	—
Age	49.91	14.72	-.09**	.03	-.25***

* $p < .05$; ** $p < .01$; *** $p < .001$.

Correlation analysis showed that SV was significantly correlated with the other variables (Tab. 2). SV was highly positively correlated with PML (r = .68, p < .01) and, in contrast, fairly positively correlated with SML (r = .13, p < .01), but fairly negatively correlated with age (r = -.09, p < .01). SML and age had no significant correlation with PML. However, age was inversely correlated with SML (r = -.25, p < .01).

The hypotheses were tested conducting a three-stage hierarchical regression analysis to find out the role of SML and PML, and their interaction in the prediction of SV (Tab. 3). Durbin-Watson statistic was 2.00 (p > .88) and indicated that the values of the residuals were independent. Model diagnostics revealed no evidence of multicollinearity (Minimum Tolerance = .888, Maximum VIF = 1.13) and heteroscedasticity. The histogram of standardized residuals appeared bell-shaped and approximately normally distributed. The normal probability plot contained data points close to the line, with no discernible pattern. Outliers were identified in the data, but according to Cook's distance, no extreme cases influenced the entire model (Maximum = .030). The three-stage regression model showed the good fit for the data and the last model revealed smaller information criterion values (AIC = 2134; BIC = 2200; RMSE = .864) compared to the other models. The overall regression was statistically significant (R^2 = .52, F (12, 814) = 72.29, p < .001). The results of the regression analysis are summarized in Table 3.

As predicted in the first hypothesis, disability types showed significant associations with SV in all models. Individuals with congenital disabilities had higher SV scores compared to individuals with acquired and progressive disabilities. Additionally, results revealed that both PML (B = .565, β = .658, p < .001) and SML (B = .089, β = .113, p < .001) had positive significant associations with SV in model two and three. These results partially confirmed our second hypothesis. PML positively improved SV, but, contrary to our hypothesis, SML also positively predicted SV. Regarding the third hypothesis, regression analysis showed that SML played a moderating role and attenuated the relationship between PML and SV (B = -.038, β = -.070, p < .001) in model three. Although the interaction term was statistically significant, the effect size was poor according to Cohen's (1988) criteria. Additionally, R square change was only .006 for the third model and the semi partial correlation was -.074 (r^2a(b,c) = .006, p < .05) for the interaction. However, as reported by the literature, detecting the power of moderator effects or interactions is difficult, and statistical power of

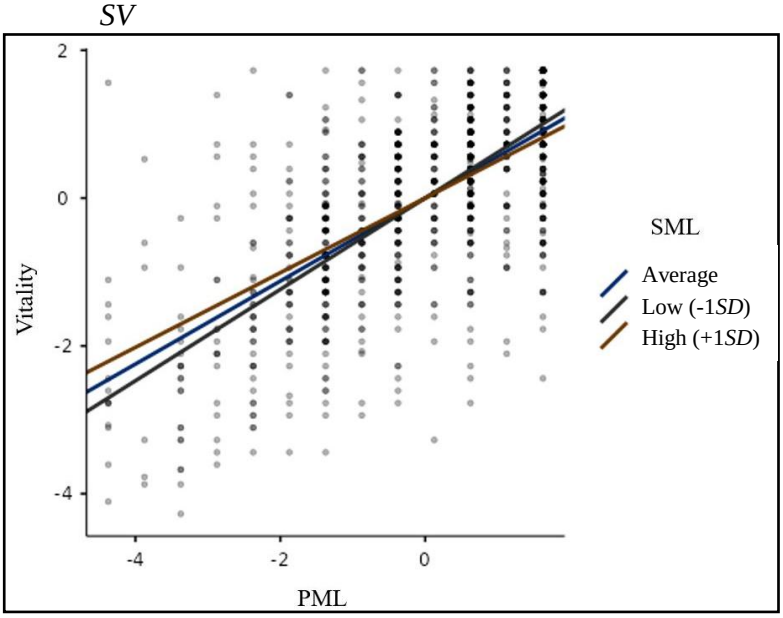
Table 3 – *Hierarchical regression analysis for variables associated with SV*

	Model 1			Model 2			Model 3		
	B	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Intercept	5.491	.195***		5.572	.147***		5.579	.147***	
Female – Male	-.179	.088*	-.144	-.112	.065	-.090	-.123	.064	-.099
Undergraduate – Primary/Secondary	-.036	.136	-.029	-.034	.100	-.027	-.040	.099	-.033
Graduate – Primary/Secondary	.292	.136*	.235	.138	.100	.111	.136	.100	.109
Postgraduate – Primary/Secondary	.262	.151	.211	.008	.112	.006	-.007	.111	-.006
Employed – Unemployed	.387	.094***	.311	.067	.071	.054	.055	.071	.044
Part-Time – Unemployed	.470	.121***	.378	.157	.090	.127	.147	.089	.118
Progressive – Congenital	-.572	.118***	-.461	-.325	.088***	-.261	-.316	.087***	-.254
Acquired – Congenital	-.349	.104***	-.281	-.208	.077**	-.168	-.221	.077**	-.177
Age	-.004	.003	-.049	-.004	.002	-.042	-.003	.002	-.039
PML				.570	.022***	.664	.565	.022***	.658
SML				.083	.020***	.105	.089	.020***	.113
PML*SML							-.038	.012***	-.070
AIC		2648			2142			2134	
BIC		2700			2204			2200	
RMSE		1.184			.870			.864	
R^2		.092			.510			.516	
ΔR^2		–			.418			.006	
F (df)		9.170 (9; 817)			77.030 (11; 815)			72.290 (12; 814)	

* $p < .05$; ** $p < .01$; *** $p < .001$.

moderation with two continuous variables should be much lower (McClelland & Judd, 1993). Additionally, Kenny (2016) advocated a new realistic criterion for the moderation test and determined that .005, .01 and .025 effect sizes can be considered as small, medium and large effects, respectively. Moreover, the AIC and the BIC as well as the RMSE of model three were the lowest, indicating following Shmueli (2010), that this model had both high explanatory and high predictive power. Considering all these criteria, the current study concluded that SML negatively moderates the positive association between PML and SV with a small (or small to medium) effect size (see Fig. 1 for details). Furthermore, the interaction and simple slope analysis showed the significant effect of PML on SV at three levels of the SML (-1 *SD* below the mean, $B = .62$, $SE = .020$, $p < .001$; at the mean, $B = .56$, $SE = .025$, $p < .001$; +1 *SD* above the mean, $B = .51$, $SE = .027$, $p < .001$; refer to solid black, blue and red line, respectively, in Fig. 1). Hence, the positive effect of PML on SV was maximum when SML was at its lowest level. The effect size moderately decreased with an increase in the level of SML, reaching its minimum at the high level of SML (see solid red line in Fig. 1). This can be seen by the much steeper slope for the low level of SML (solid black line in Fig. 1).

Figure 1 – *Moderating effect of SML on the relationship between PML and SV*



4. Discussion

There is considerable research that has focused on ML in individuals without disabilities, yet this topic has gained little attention in the literature in PwD. More importantly, the handful of studies regarding PwD (Li & Moore, 1998; Bogart, 2014) lack the examination of the relationship between ML and the indicators of well-being, as well as the consideration of ML's two constructs, namely PML and SML. The current study addresses these limitations, showing an unexpected positive main effect and a negative interaction effect of PML and SML on SV.

Previous research reported an insignificant correlation between SML and PML in normally-abled individuals (Steger, Kashdan *et al.*, 2008a). Likewise, this study was consistent with Steger and colleagues (2008a), bringing to the same result for PwD. Moreover, our findings were in line with Bogart (2014), indicating that people with congenital disabilities had higher SV compared to those with acquired disabilities. In addition to Bogart's (2014) research, in this study also people with progressive disabilities were examined. According to our study, the most disadvantaged group was that of individuals with progressive disabilities showing the least SV in all disability types. This can be explained by the continuum of the disability and health status. The health of people with progressive disabilities gets worse over time and this can lead to a decrease in SV compared to acquired and congenital disabilities.

Previous studies addressed the link among vitality, PML, life satisfaction, psychological and social well-being (Ryan & Frederick, 1997; Steger *et al.*, 2006; Steger *et al.*, 2008a; Salama-Younes, 2011; Akın, 2012) in people without disabilities. Findings of the present study for PwD also showed that PML was a strong and positive predictor of SV. In other words, PwD who feel a greater PML will also have a higher vitality. SML, on the other hand, was reported to be positively related with depression, neuroticism, anxiety and negative perceptions in individuals without disabilities (Steger *et al.*, 2006; Steger, Kashdan *et al.*, 2008a). Thus, one may assume that SML has an inverse correlation with SV, which is an indicator of well-being. Strikingly, the findings of the current research showed the opposite. According to our results, there was a positive but weak association between SML and vitality in PwD. In other words, unlike what previous research suggested in people without disabilities, SML was a positive indicator for SV among PwD. Further research, which was conducted in collectivist countries, has shown that SML is positively associated with well-being in

people without disabilities (Steger, Kawabata *et al.*, 2008b; Lin *et al.*, 2021). Hence, SML might differ from culture to culture or from people without disabilities to those with disabilities. However, evaluating only the main effects of PML and SML without considering the interaction effects on SV may not be enough to find the real association between ML and SV for PwD.

The current study questioned the issue mentioned above in PwD for the first time in the literature. The same issue was previously addressed in people without disabilities and found a positive interaction effect between PML and SML on the indicators of well-being (Park *et al.*, 2010; Steger *et al.*, 2011; Cohen & Cairns, 2012; Grouden, 2014; Fisher, 2018). In other words, as PML increases, SML decreases, and this promotes well-being and vice versa. However, we should note that all the published research, in the first place, reported positive main effects of PML and negative main effects of SML on the well-being. Yet, as discussed earlier, our study showed positive main effects of both PML and SML on SV in PwD. Surprisingly, when looking at the interaction of the two positive main effects, we found a weak but negative interaction between PML and SML on SV. Even though the effect size of this interaction was small, it was still higher than other research (Park *et al.*, 2010; Steger *et al.*, 2011; Cohen & Cairns, 2012; Grouden, 2014; Fisher, 2018). When the source of interaction was investigated, the results revealed that three levels of SML (i.e., -1*SD* below, average, +1*SD* above) had a significant effect. In other words, while PwD having a low level of SML and a high level of PML endorsed the highest vitality rate, PwD having a high level of SML and a low level of PML endorsed the lowest vitality rate (Fig. 1). This negative interaction between PML and SML on SV can be explained by looking at the individuals who have meaning in their lives but still seek for the meaning to achieve a better well-being (Park *et al.*, 2010).

Another interesting finding of this interaction came from the results where PML in PwD was at its lowest. According to this result, some PwD who almost had no PML showed, in contrast, to have an increase in their SML and also an increase in their vitality. This finding is similar with previous research on people without disabilities who found that individuals with a low level of PML may have a low or reasonable well-being (Cohen & Cairns, 2012) or life satisfaction (Steger *et al.*, 2011) when they have a high level of SML. Furthermore, people who have a very low PML possibly tend to continue seeking for the meaning in life as far as they stabilize their meaning system (King & Hicks, 2009) and to continue searching for the

meaning can help them in maintaining PML in a compensatory manner (Grouden, 2014).

4.1. Limitations and future directions

Although some studies indicated that the well-being of disabled people is poor, PwD can reach a good well-being (Albrecht & Devlieger, 1999; Edwards, 2013). However, PwD are not a homogenous group in terms of their characteristics and ability levels. Taking the specific challenges and needs of PwD into consideration in future research, may help getting detailed insight. Separating disabilities into acquired, congenital and progressive can be problematic, because both congenital and acquired disabilities can also be progressive. Evaluation of PML, SML and SV for each disability type, and the degree of severity of the disabilities, should also be studied. Further studies focusing on specific disabilities, such as cerebral palsy, spasticity and spinal cord injuries, are required to achieve a better understanding of PML, SML and SV. Using the short forms of the scales in the field of disability can also be problematic as one reverse item of PML scale was removed. Conducting research with long forms of PML and SML can be helpful to make a detailed analysis in PwD. In addition, well-being is multifaceted (Ryan & Deci, 2001) and can be captured better using more instruments (McMahan & Estes, 2012) rather than a single instrument, such as vitality. Moreover, this research was limited to PwD who live in the U.S. and the distribution of the participants among different states was not included the study. The literature regarding PwD can benefit from research that is conducted in different countries to highlight the cultural differences.

Our research revealed that the interaction between PML and SML for SV was statistically significant. However, this significant finding might be explained by the high sample of the current study. Thus, looking only at statistical significance may be misleading. It is also important to examine practical significance, which is indicated by stronger effect sizes that are not directly influenced by the sample size. Although the statistical power of the current study was high, the effect size of the interaction was small like other related studies (Park *et al.*, 2010; Steger *et al.*, 2011; Fisher, 2018). Furthermore, longitudinal studies are required to clarify the direction and strength of the relationship among PML, SML, demographic factors and SV.

5. Conclusions

This study helps to fill the gap in the literature regarding the meaning in life and the subjective vitality of individuals with disabilities. The present research showed that individuals with congenital disabilities had a higher vitality than people with acquired and progressive disabilities. Moreover, this is the first study that reveals the positive main effects of both PML and SML on SV in an individualist culture. Seeking for the meaning in life is a vital element of being human. This process may have at least a balance effect on SV and may conditionally promote vitality in individuals with disabilities. The effect of PML moderately decreased with an increase in the level of SML. However, the increase of SML only reduced the acceleration impact of PML on vitality, but it did not stop the positive effect of PML all together. Consistent with the arguments of Frankl (2000), seeking for the meaning in life can motivate individuals with disabilities who are faced with hard life situations and/or specific challenges in their lives to discover their strengths against barriers and to find a meaning in their life. Fostering a balance between PML and SML can help them increase their stamina and vitality.

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