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Being Yourself and Mental Health: Goal Motives, Positive Affect and Self-Acceptance Protect People with HIV from Depressive Symptoms

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Abstract

Depression is a major problem for many people living with HIV. In general population-based studies, it was found that characteristics of personal goals, positive affect, and self-acceptance were associated negatively with depression, but almost no studies have investigated their role in HIV infection-related depression. This study examines a prospective model where autonomy and perceived progress in personal goals are positively associated with self-acceptance and positive affect, and these variables, over time, are negatively associated with depressive symptoms. Participants ($N = 70$) responded first to measures of autonomy, progress in personal goals, perceptions of self-acceptance, and positive affect, and 4 months later, they completed measures of depression. Personal goals variables were observed to be differentially associated with well-being variables: whereas personal goals autonomy was directly associated with both well-being variables, progress in personal goals was directly associated with positive affect and indirectly with self-acceptance, through its association with positive affect. Longitudinally, both self-acceptance and positive affect were associated with depression, the former directly, and the latter indirectly, through its association with self-acceptance. Self-acceptance is revealed as an important predictor of depression in PLWH. Results are discussed in terms of the contributions of hedonic and eudaimonic well-being to the relief of depressive symptoms.

Keywords Personal goals · Positive affect · Self-acceptance · Depression · HIV/aids

1 Introduction

Depression is one of the most common psychopathological phenomena in HIV infection (Belkin et al. 1992; Sueoka et al. 2010). Depression in people living with HIV (hereafter PLWH) may arise as a result of biological and psychological factors associated with

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infection—for example, as a negative consequence of antiviral medication or of the uncertainty associated with the evolution of the infection—as well as of more psychosocial factors such as the social stigmatization of the disease in the daily life of PLWH (Fumaz et al. 2007; Fuster et al. 2014). On another hand, in recent years, the protective role of psychological well-being in mental disorders is being increasingly investigated (Keyes 2002; Jané-Llopis and Anderson 2005). Psychological well-being, both in its hedonic form—that is, as the extent to which people experience positive emotions—and in its eudaimonic form—that is, as the extent to which people function well in their lives—is being revealed as a protector and preventative factor against depressive states (Grant et al. 2013; Risch et al. 2013).

In this study, we propose a model for predicting depressive symptoms in PLWH based on perceived autonomy and progress toward personal goals, and two well-being variables, one of them hedonic (positive affect) and the other one eudaimonic (self-acceptance). We thus suggest a longitudinal integrative model in which both goal autonomy and progress are associated with positive affect and self-acceptance. In turn, over time, self-acceptance and positive affect are both negatively associated with the depressive symptoms experienced by PLWH. Furthermore, as in the literature there are a number of different theoretical approaches to the relation between hedonic and eudaimonic well-being, in this study, we analyze interactions between self-acceptance and positive affect related to depressive symptoms (see Fig. 1).

After reviewing depression in the context of PLWH, the proposed model will be described in three distinct parts: firstly, the proposed links of positive affect and self-acceptance with depressive symptoms; secondly, the mediating effects of self-acceptance and positive affect on depressive symptoms; and thirdly, the proposed links of goal autonomy and progress with positive affect and self-acceptance.

It is reported that as many as one in three PLWH may suffer from depression (Bing et al. 2001; Rabkin 2008). Depression in PLWH could be triggered by stress or side effects of medications and its presence in PLWH can seriously compromise both adherence to treatment and the course of the infection itself (Gonzalez et al. 2007; Leserman 2003). In
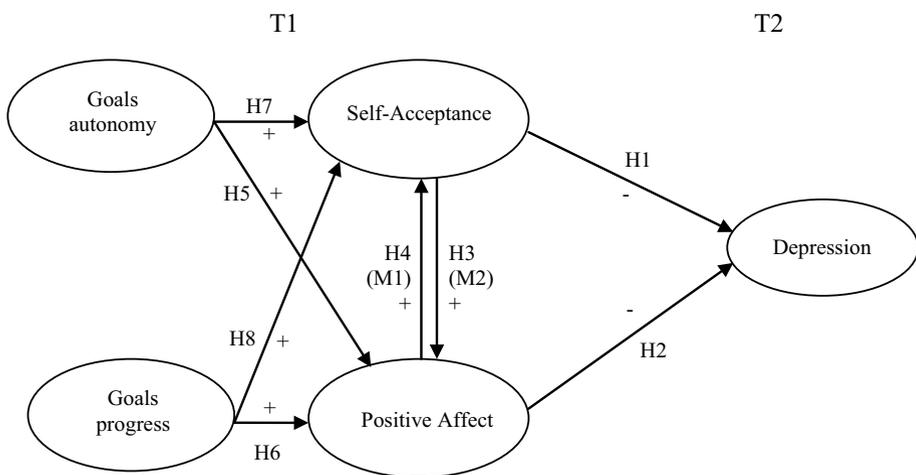

Fig. 1 Path diagram showing the relationships among latent variables in the proposed model (*Note*: *M1* Mediational Model 1, *M2* Mediational Model 2)

addition, PLWH must face the social consequences of the stigmatization of the disease. Stigmatization processes often lead to difficulties to disclose one's serology, both in work and affective contexts. This state of affairs often causes severe depression in many PLWH (Chaudoir et al. 2012; Sumari-de Boer et al. 2012).

1.1 Positive Affect and Self-Acceptance: Potential Resources of Mental Health

In the proposed model, we considered whether positive affect and self-acceptance would be negatively associated with depression. Positive affect reflects pleasurable engagement with the environment and includes the degree to which one feels enthusiastic, alert, and active (Watson 2005), and it is an essential dimension of subjective well-being (Diener et al. 2005). Regarding positive affect, the *broaden-and-build theory of positive emotions* argues that maintaining positive affect during stressful situations increases mental flexibility, enabling people to deal with such situations more effectively (Fredrickson 2001, 2004). In this sense, it is important to bear in mind that stressful situations that cannot be satisfactorily resolved can lead to depressive states (Hammen 2005). In the same vein, other research found that positive affect has an adaptive value in stressful situations (Shrira et al. 2011), and that low positive affect is a vulnerability factor for depression (Harding et al. 2014). Therefore, we can hypothesise that greater or more frequent experiences of positive affect may offer PLWH a better chance of recovery from the effects of stress—to the extent that they may end up being more protected from depressive states or symptoms.

Self-acceptance refers to individuals' self-satisfaction, and implies both self-understanding and an awareness of one's own strengths and weaknesses (Ryff 1989). Self-acceptance is a central feature of Jahoda's mental health (1958), Maslow's self-actualization (1968), Rogers's optimal functioning (1957), and Allport's maturity concept (1961). We chose this variable because it is particularly relevant to understand depressive psychopathology in PLWH. As long as the infection has no definitive cure, acceptance of the illness and of oneself, in a broad sense, is a key objective for PLWH (Emlet et al. 2011).

Ryff (1989) proposed that self-acceptance is one of the six basic dimensions of psychological well-being (i.e., self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth). Relations of psychological well-being with health-related variables have frequently been examined using sums of scores of the six dimensions, such that the contribution of self-acceptance to these associations cannot be known. Nevertheless, a few studies examined the relation between self-acceptance and depression. For instance, several studies found that depressed participants scored significantly lower on self-acceptance (Edmondson and MacLeod 2015; Risch et al. 2013). In addition, another study showed that self-acceptance predicted lower levels of rumination, a basic symptom of depression (Boyraz and Waits 2015).

Both variables—positive affect and self-acceptance—seem to influence the depressive experience in different ways: positive affect by making it easier to face stressful situations, and self-acceptance as a process of modification and creation of meaning and identity in psychosocial contexts that require modification—such as HIV infection. Therefore, we propose the following two hypotheses for the links of positive affect and self-acceptance with depression:

H1 Self-acceptance in PLWH is negatively associated with depressive symptoms.
H2 Positive affect in PLWH is negatively associated with depressive symptoms.

1.2 Mediating Effects of Self-Acceptance and Positive Affect on Depressive Symptoms

We have proposed that an individual's self-acceptance and positive affect have an independent impact on the depressive symptomatology of PLWH. Nevertheless, the two variables could be associated with each other and produce complex interactions in depressive symptomatology. Concerning the relationships between hedonic and eudaimonic well-being, Sheldon (2016) suggested that eudaimonia is a set of actions that may accompany or lead to experiencing wellness rather than being a form of well-being. If eudaimonic well-being is a predictor of positive affect, and positive affect is negatively associated with depressive symptoms, then we could hypothesise a mediating effect of positive affect. This way, self-acceptance—a eudaimonic variable—besides its own association with depressive symptoms, would also be associated with them through positive affect.

On another hand, it has been suggested that hedonic well-being could result in typical eudaimonic experiences. For example, King et al. (2006) found in various experiments that positive affect predicted meaning, a variable of eudaimonic well-being. In this case, a eudaimonic variable would be the consequence of hedonic well-being. Applying this view to our study, it is plausible to consider that positive affect—that is, hedonic well-being—in addition to its own association with depressive symptoms, would also be associated with them through self-acceptance—that is, through eudaimonic well-being.

Nevertheless, the context of the mentioned studies was the healthy functioning of individuals and not a psychopathology context, and studies examining interactions between hedonic and eudaimonic variables in relation to psychopathology are still scarce. Therefore, we propose the following two hypotheses for the links between positive affect and self-acceptance with depression:

H3 Positive affect plays a mediating role in the association between self-acceptance and depressive symptoms in PLWH.

H4 Self-acceptance plays a mediating role in the association between positive affect and depressive symptoms in PLWH.

1.3 Perceived Autonomy and Progress Toward Personal Goals: Determinants of Self-Acceptance and Positive Affect

The Self-Determination Theory (STD, Ryan and Deci 2000) suggests that the reasons for pursuing a goal may influence the positive affect being experienced. In this sense, a personal goal may be sought via autonomy-related motivation (i.e., the goal is related to genuine interests and/or convictions and deeply assumed values), or it may be sought via controlled motivation (i.e., due to external pressures and/or feelings of guilt or anxiety in the face of the possibility of not achieving the goal).

Several studies found that autonomous goals were related to positive affect, whereas controlled goals showed no such link (Huta and Ryan 2010; Miquelon and Vallerand 2006). On another hand, the Self-Regulation Theory posited by Carver et al. (2015) maintains that people's perception of their own progress is an important factor in the experience of positive affect. Drawing on a feedback mechanism, positive affect is the result of the perception of progress in the attainment of a goal, and, in turn, stimulates actions oriented towards the goal (Carver and Scheier 1990).

To our knowledge, there have thus far been no studies showing the extent to which the perception of goal autonomy and progress are specifically associated with the well-being of PLWH. The magnitude of this link may be considerable, given that many PLWH experience serious difficulties to achieve acceptable well-being due to the infection (Warren-Jeanpiere et al. 2014). Thus, we propose the following hypotheses:

H5 Perceived goal autonomy is positively related to positive affect in PLWH.

H6 Perceived goal progress is positively related to positive affect in PLWH.

On another hand, according to the SDT, the pursuit of autonomous goals would enhance well-being, as these goals are aligned with one's true self (Sheldon 2014). Thus, an association between autonomous goals and self-acceptance seems logical because this association may facilitate the development and expression of the person's inner potentials (Ryan et al. 2008). It has also been speculated that progress toward personal goals could be associated with eudaimonic variables (Miquelon and Vallerand 2008). Thus, we propose the following:

H7 Perceived autonomy in personal goals is positively related to self-acceptance.

H8 Perceived progress toward personal goals is positively related to self-acceptance.

2 Methods

2.1 Participants

In the first phase of the study, organisations that support PLWH were contacted in order to obtain the sample, and these organisations offered users the chance to freely participate in the study. Eligibility criteria were as follows: confirmation of HIV-1 diagnosis, being over 18 years of age, and permanent residence in Spain. One-hundred and twelve PLWH participated. Participants were mainly single men who had caught the infection through unprotected sexual relations or after having shared injecting material. Clinical data showed that the participants had an acceptable virological and immunological status. Participants' socio-demographic and clinical data can be viewed in Table 1.

Four months later, they were contacted by phone and asked to participate in the second part of the study. Of the 112 initial participants, 79 PLWH responded positively to the appointment, and 33 declined to participate. Of the 79 participants, nine did not provide suitable answers to the questionnaire, (they did not answer completely one or more sections of the questionnaire) so they were not included in the sample. The final sample was therefore made up of 70 individuals. Informed consent was obtained from all individual participants included in the study.

2.2 Procedure

In the first phase, after contacting the relevant centres, members of the research team went on to collect the data. Participants completed a questionnaire measuring socio-demographic data, personal goals, positive affect and self-acceptance. Four months later, they were requested to complete a second questionnaire in which they were asked about depressive symptoms.

Table 1 Socio-demographic and health-related characteristics of participants in the study

	Data
Gender	
Men	79.9%
Women	20.1%
Age average in years ($\pm SD$)	42.94 ± 6.08
Education	
College level	17.1
High school level	34.3
Did not graduate high school	48.6
Marital status	
Married/living with a couple	28.6
Divorced/separated	17.1
Single	47.1
Widow	7.1
Transmission route	
Unprotected sexual relationship	37.1%
Sharing injection material	27.8%
Unknown (concomitant practices)	18.6%
Unknown (non reported)	16.5%
Length of infection in years ($M \pm SD$)	12.96 ± 8.71
Participants with more than 10 years of infection	61.4%
Participants in treatment for HIV, HCV or both	78.6%
CD4 counting, cells/mm^3, mean ($M \pm SD$)	491.8 ± 294.6
Viral plasmatic charge undetectable	70.6%

HCV hepatitis C virus

2.3 Instruments

Autonomy and progress toward personal goals. Participants were asked to provide a list of three personal goals, defined as "goals and concerns that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at" (Sheldon and Kasser 1998). Most of the participants' goals were related to health issues ("prepare treatment with Interferon", "quit smoking") or family matters ("have more time to see my children", "perform a parental role"). The rest of the goals were focused on labour or leisure issues ("find a job", "be able to go on holidays").They were then asked about their intrinsic motivation—i.e., autonomy—("to what extent do you think you pursue the goal because you like it, it satisfies you or you find it fun?") for each of these goals. The perception of progress towards the goal (Carver and Scheier 1990) was measured with the question "to what extent do you think you are making suitable progress towards achieving the objective?" Responses to both questions were rated on a 7-point Likert scale (1 = *not at all*, 7 = *totally*).

Positive affect. Participants were asked to comment on the positive emotions they had experienced during the past month. To this end, ten items related to positive affect from the Spanish version of the PANAS scale were used (Watson et al. 1988, Spanish validation by Sandín et al. 1999). Participants responded on 5-point Likert scale

how often had they felt that way last week (1 = *never or almost never*; 5 = *very often*). Examples of items of PANAS Positive Affect scale items are "excited", "inspired" and "determined".

Self-acceptance. Four Spanish-validated items from the Self-Acceptance subscale of Ryff's Psychological Well-being Scale (Ryff 1989; Spanish validation by Díaz et al. 2006) were used to assess self-acceptance. These items were rated on a six-point Likert scale (1 = *totally disagree,* 6 = *totally agree*). Examples of self-acceptance are "I like most aspects of my personality" and "When I look at the story of my life, I am pleased with how things have turned out".

Depression. Depressive symptoms were measured using the Spanish seven-item version (Herrero and Gracia 2007) of the CES-D scale (Radloff 1977). Participants were asked how often they experienced those symptoms in the last week. The items were rated on a four-point Likert scale (0 = *rarely or never*, 3 = *most of the time or all the time*). Examples of CESD-7 are "I felt that I could not shake off the blues even with help from my family or friends", and "I felt sad". In the creation of the seven-item version used in this study, no cut-off point was proposed. However, arbitrarily applying Santos and Coyne's (1997) cut-off point of 4 for the 9-item version, 72.9% of the sample scored equal to or above 4, showing a significant depressive symptomatology. Data were analyzed with Partial Least Squares Path Modelling program SmartPLS 3 (Ringle et al. 2015).

3 Results

3.1 Data Analysis

Missing participants were compared with those included in the analyses. Although the included participants were slightly higher in self-acceptance and positive affect compared with the excluded participants, neither of these differences approached statistical significance ($p = .25$ and .53, respectively). No sex differences were found, and therefore all the analyses reported below are collapsed across sex. No significant differences between the two groups of participants appeared on any other independent variable. Many items showed missing values. As their frequencies were lower than 5%, these cases were replaced with the variable mean.

The descriptive statistics and the correlations between the target variables can be seen in Table 2. Correlations were calculated with the latent variables of the study and the sociodemographic variables (gender, age, education level, civil status, health), and CD4 cell count and viral load, without finding significant correlations.

Owing to the small size of the sample and the exploratory nature of the model, analysis was carried out with a Partial Least Squares Path Modelling (PLS-PM) approach, using SmartPLS 3 software for this purpose (Ringle et al. 2015). Unlike covariance-based techniques, the PLS statistical approach permits complex multivariate modelling relations with small samples and does not need to meet distributional requirements in order to estimate the model's parameters (Hair et al. 2017). PLS models are normally analysed and interpreted in two phases; firstly, reliability is evaluated and validity of the measurement model is confirmed, and secondly, the structural model is evaluated. The process of model fit to the data depends on an iterative procedure that first estimates measures for the observed variables and then estimates the relationships between the latent variables. Thereby, a least square adjustment is made between the observed variables and modelling parameters. The

Table 2 Study variables' descriptive statistics and correlations

	Mean	SD	Max.	Min.	Goal autonomy	Goal progress	Self-acceptance	Positive affect	Depressive symptoms
Goal autonomy	32.800	7.321	20	2	1.00	.303*	.407**	.323**	−.125
Goal progress	11.043	4.521	20	3		1.00	.341**	.438**	−.214
Self-acceptance	15.671	4.717	24	4			1.00	.395**	−.365**
Positive affect	30.01	8.02	47	14				1.00	−.272*
Depressive symptoms	9.142	5.881	21	0					1.00

solution for the best fit is provided when the least squares function stabilizes between interactions (Chin 2010).

3.2 The Measurement Model

The measurement model specifies the relationships between the observed variables and the underlying constructs and it should evaluate the reliability and convergent validity of the model.

As regards reliability of the indicators, most of them obtained scores of over .70 (see Table 2). Items with factorial loadings lower than .70 were eliminated: 5 items of the PANAS (PANAS01: interested, PANAS12: alert, PANAS 14: inspired, PANAS 16: determined, PANAS17: attentive); one item of the Self-Acceptance Scale (SA01: "when I look at the story of my life, I am pleased with how things have turned out"); and two items of the CES-D scale (DEP05: "I felt that everything I did was an effort", DEP06: "I enjoyed life").

In assessing the measurement model, construct reliability was estimated using composite reliability and Cronbach's alpha. Both indexes assume values between 0 and 1, with higher values indicating higher construct reliability, generally accepting a reliability level equal to or above .70 for both indexes (Nunnally and Bernstein 1994). Table 3 shows the Cronbach alpha and composite reliability scores of the present model constructs, where we observe all that constructs exceeded the minimum of .70, except for the variable "progress toward personal goals", which scored high in composite reliability, and obtained a Cronbach alpha score of .686.

Convergent validity was estimated using the average variance extracted (AVE) of the constructs and Cronbach's alpha for the indicators, and discriminant validity via the Fornell–Larcker criterion (Fornell and Larcker 1981) and the heterotrait-monotrait (HTMT) ratio (Hair et al. 2017).

With regard to convergent validity, the use of the AVE is common practise to analyse models with PLS. The AVE includes the variance of indicators captured by the construct relative to the total amount of variance, including the error variance, and should exceed a value of .50 for construct validity to be acceptable (Chin 2010). Table 3 shows that the AVE of the model's constructs are above .50.

When analysing discriminant validity of the model constructs, compliance with the Fornell-Larcker criterion is required (i.e., the constructs should share more variance with their block of indicators than with other latent variables that may be present). This occurs when the square root of the AVE of a construct is greater than the correlation of that construct with any of the other constructs in the model (Fornell and Larcker 1981). In the lower part of Table 4, it can be seen that the criterion is met with all the model's latent variables.

Finally, the HTMT ratio was applied. HTMT is the mean of all the correlations of indicators across constructs measuring different constructs relative to the mean of the average correlations of indicators measuring the same construct (Henseler et al. 2015). HTMT is an estimate of the true correlation between two constructs if they were perfectly measured. Henseler et al. (2015) proposed that when the constructs are conceptually distinct, correlations over .85 imply absence of discriminant validity. As PLS is a non-parametric methodology, a bootstrapping procedure must be used in order to know the confidence intervals of this statistic. A confidence interval containing the value 1 indicates a lack of discriminant validity. In the upper part of Table 4, it can be seen that the HTMT ratios of all the variables of the model are lower than .85 and that their confidence intervals do not contain the

Table 3 Indicators' loadings, reliabilities and constructs, average variance extracted, composite reliability and Cronbach alpha	Convergent validity			Internal consistency and reliability	
	Loadings	Indicator reliability	AVE	CR	α
Latent variable					
Indicators	> .70	> .50	> .50	.60–.90	> .70
Autonomy			.630	.836	.706
auton01	.754	.568			
auton02	.851	.724			
auton03	.773	.597			
Progress			.613	.825	.686
prog01	.713	.508			
prog02	.776	.602			
prog03	.853	.728			
PA			.583	.848	.812
panas03	.750	.562			
panas05	.726	.527			
panas09	.807	.651			
panas10	.685	.469			
panas19	.724	.524			
SA			.624	.832	.743
pwb07	.821	.674			
pwb17	.734	.539			
pwb24	.812	.659			
DEP			.610	.886	.850
dep01	.716	.513			
dep02	.754	.568			
dep03	.881	.776			
dep04	.751	.564			
dep05	.622	.386			
dep06	.675	.456			
dep07	.795	.632			

AVE average variance extracted, *CR* composite reliability, *α* Cronbach's alpha, *Autonomy* perceived autonomy on personal goals, *Progress* perceived progress on personal goals, *PA* positive affect, *SA* self acceptance, *DEP* depression

value 1. To sum up, the data provided show that the measurement model represents the data matrix adequately.

3.3 The Structural Model

Despite that the PLS approach does not depend on the use of statistic fit, due to the fact that it is not based on distributional parameters, different non-parametric tests can be implemented to evaluate the quality of the structural model. Three different non-parametric tests

Table 4 Variance inflation factor (VIF) values of the general model variables, correlations, Fornell–Larcker criterion, HTMT ratios and HTMT ratios' confidence intervals (CI)

Constructs	VIF	Heterotrait–monotrait ratio (HTMT)					HTMT CI not include 1
		1	2	3	4	5	
1. Goal autonomy	1.075	**.794**	.362	.602	.475	.237	Yes
2. Goal progress	1.075	.265	**.783**	.454	.650	.294	Yes
3. Self acceptance	1.175	.446	.336	**.764**	.480	.468	Yes
4. Positive affect	1.175	.370	.551	.385	**.718**	.356	Yes
5. Depression		−.195	−.256	−.415	−.326	**.763**	Yes
		Fornell–Larcker criterion					

Variance inflation factor (VIF) values of the general model variables, correlations, Fornell-Larcker criterion (in bold the square root of the AVE of each construct), HTMT ratios and HTMT ratios' confidence intervals

were applied using the PLS approach to assess the structural model. Table 5 and Fig. 2 provide details of these tests, which include: (1) the magnitude and significance of paths via t-tests obtained using bootstrapping; (2) the determination coefficients of the endogenous variables (R^2) and their effect size (f^2); and (3) the Stone-Geisser predictive relevance statistic (Q^2) and the effect size of this statistic (q^2) for each of the dependent latent variables (Hair et al. 2017). It was previously ascertained that there were no problems with collinearity between the model's constructs (see Table 4).

The Smart PLS 3 program assessed the validity of the paths through the bootstrapping technique, which computes empirical *t* test values and their probabilities (Hair et al. 2017). In addition, the bootstrapping procedure allows obtaining confidence intervals to verify whether a path coefficient differs significantly from zero. Confidence intervals provide information about the coefficient's stability, offering a range of plausible population values for the parameter depending on the data's variability and the size of the sample. If the interval does not contain zero, the hypothesis that the path equals zero is rejected and assumes a significant effect (Hair et al. 2017). For the present study, the number of bootstrap samples used was 5000. Figure 2 shows the non-significant paths in dotted lines. As can be

Table 5 Model's bootstrapped path coefficients, t-test, confidence intervals and f^2 and q^2 statistics

Path	β	t	p values	95% Confidence Intervals	f^{2a}	q^{2b}
1. Autonomy goals → self-acceptance	.293	2.377*	.017	[.032, .520]	.183	.50
2. Autonomy goals → positive affect	.218	2.116*	.034	[.006, .413]	.088	.021
3. Progress in goals → self-acceptance	.094	.838	ns	[−.146, .300]	.069	0
4. Progress in goals → positive affect	.456	4.344**	.000	[.200, .627]	.270	.114
5. Positive affect → self-acceptance	.307	2.871**	.004	[.067, .490]	.095	.053
6. Positive affect → depression	−.181	1.381	ns	[−.405, .118]	.041	.012
7. Self-acceptance → depression	−.321	2.434**	.015	[−.527, −.019]	.123	.041

GP goal progress, *GA* goal autonomy, *PA* positive affect, *SA* self-acceptance, *DEP* depressive symptoms

N = 70; *p < .05; **p < .01

[a] $f^2 = \left(R^2_{included} - R^2_{excluded}\right) / \left(1 - R^2_{included}\right)$

[b] $q^2 = \left(Q^2_{included} - Q^2_{excluded}\right) / \left(1 - Q^2_{included}\right)$
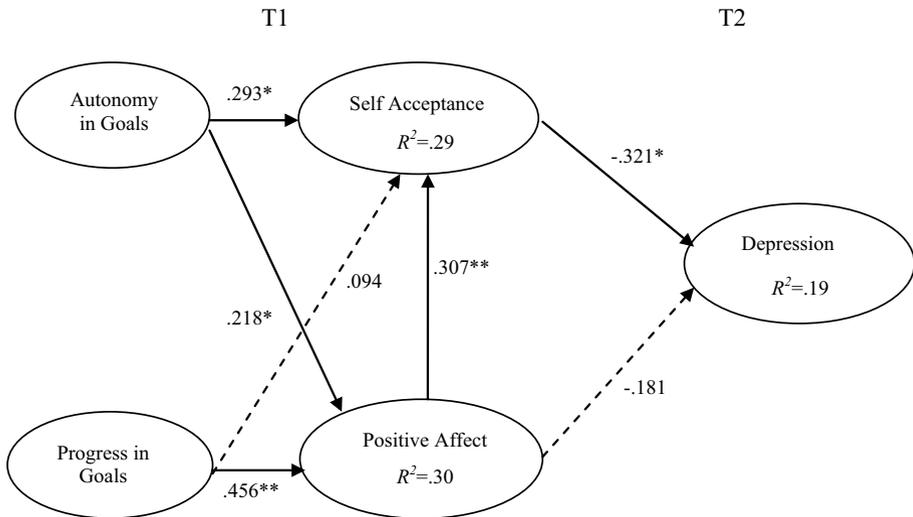
Fig. 2 Path diagram showing the relationships among Time 1 latent variables (Autonomy and Progress towards Goals, Self Acceptance and Positive Affect) and Time 2 latent variable (Depression) (**$p < .01$). *Note*: Nonsignificant paths are represented by dotted lines

observed, the autonomy of personal goals was positively and significantly associated both with self-acceptance and with positive affect, whereas the goal progress was significantly associated solely with positive affect. On another hand, self-acceptance measured at Time 1 (T1) predicted depression negatively and significantly at Time 2, but positive affect was not significantly associated with it.

Nevertheless, a mediating effect between progress toward personal goals and self-acceptance was unexpectedly found, with the mediator variable being positive affect (.140). Therefore, both autonomy in personal goals and the progress perceived toward them were significantly associated with self-acceptance, whereas progress toward goals had an indirect relation, through its association with positive affect (see Table 6).

Secondly, in terms of the determination coefficients of the endogenous variables, a statistical power analysis showed that, for a regression with two independent variables, samples of more than 68 participants provide sufficient evidence to suggest that the R^2 obtained are statistically significant (Faul et al. 2007). In addition to the size of the R^2, in PLS, the effect size of the R^2 of the endogenous variables of the model is also analyzed through the statistic f^2 (Hair et al. 2017). To perform this analysis, the change in the R^2 of the model when a certain exogenous variable is eliminated from it is observed, such that $f^2 = \left(R^2_{included} - R^2_{excluded}\right) / \left(1 - R^2_{included}\right)$. In accordance with Cohen (1992), values of .02, .15 and .35 mean respectively minor, medium and major effect sizes of the predictor variables in question on the dependent variable. Figure 2 presents the R^2 values of the endogenous variables of the model, and Table 5 shows the effect sizes—f^2 statistic—of those R^2 values. If we examine the effect size of the exogenous variables on the intermediate variables (see Table 5), we see that the f^2 of goal autonomy on self-acceptance is .183,—that is, a medium effect size—whereas the f^2 of progress toward goals on self-acceptance is low (.069). On another hand, with regard to the effect sizes of the R^2 of self-acceptance and positive affect on depression, we see that the f^2 of self-acceptance obtains a value of .123, whereas that of positive affect is .041. We can therefore conclude that the contribution of

Table 6 Bootstrapped indirect effects of Model 2

Model 2: Mediation effects

Path	Direct effect	95% CI of the direct effect	t value	Sig.	Indirect effect	95% CI of the indirect effect	t value	Sig.
PA→SA→DEP	−.181	[−.404, .119]	1.411	ns	−.099	[−.205, −.008]	1.941	.05
GP→PA→SA	.094	[−.123, .132]	.840	ns	.140	[.036, .275]	2.277	.023

GP goal progress, *PA* positive affect, *SA* self-acceptance, *DEP* depressive symptoms

N = 70; *p < .05; **p < .01

goal autonomy to self-acceptance and of the latter to depressive symptoms is substantial, whereas the contribution of positive affect is small.

Thirdly, the Stone-Geisser Q^2 statistic was used to assess the model's predictive relevance (Geisser 1974). This measure is an indicator of the model's out-of-sample predictive power. The Stone-Geisser Q^2 statistic reproduced the observed values and their estimated parameters, following the *blindfolding* procedure (Chin 2010). $Q^2 > 0$ indicates that the model has predictive relevance whereas $Q^2 < 0$ indicates a lack of predictive relevance. In the case of the model's three endogenous constructs (self-acceptance, positive affect and depression), the data indicate that the model as a whole presented predictive validity (Q^2 values of .116, .141 and .090 for self-acceptance, positive affect and depression, respectively). As in the case of the f^2 statistic, the q^2 statistic assesses the effect size of the relative impact and predictive relevance of each dependent variable $\left(q^2 = \left(Q^2_{included} - Q^2_{excluded}\right)/\left(1 - Q^2_{included}\right)\right)$ (Hair et al. 2017). Values over .02 indicate predictive relevance. Table 5 shows that only self-acceptance had significant predictive relevance for depression (q^2 values of .042 and .012 for self-acceptance and positive affect, respectively).

3.4 Interactions Between Self-Acceptance, Positive Affect and Depressive Symptoms

We proposed two hypotheses related to the exploration of relationships between self-acceptance, positive affect and depressive symptoms. Due to the fact that the PLS methodology does not permit examining hypotheses H3 and H4 simultaneously because it does not allow nonrecursive relations, we proposed two models. In the first one (M1), hypothesis H3 is examined, and in the second one (M2), hypothesis H4. The former hypothesis (H3) has shown that self-acceptance, directly associated with depressive symptoms, could also be indirectly linked to depressive symptoms through its relationship with positive affect. However, due to the fact the link between positive affect and depressive symptoms was non-significant, the mediating effect could not be demonstrated and, therefore, it made no sense to perform this analysis.

The latter hypothesis (H4) suggested the opposite process: positive affect, although not having a significant link with depressive symptoms, could be indirectly associated with them through self-acceptance. In structural terms, this hypothesis could be understood as a complete mediation of the effect of positive affect on depressive symptoms through self-acceptance (Zhao et al. 2010). As shown in Table 6, this mediating effect (.099) was significant. Therefore, although positive affect did not have a significant direct association with depressive symptoms, it did so through self-acceptance.

4 Discussion

This study examined a model for predicting depression in PLWH, based in perceived autonomy and progress toward personal goals, positive affect and self-acceptance. The exploratory model provided herein was designed, on the one hand, to examine relations between the perception of goal autonomy and progress, self-acceptance and positive affect and, on the other hand, to ascertain the self-acceptance and positive affect links longitudinally as a function of the experience of depressive symptoms in PLWH.

Firstly, as proposed, it was found that the perception of autonomy and progress in achieving personal goals were positively and significantly associated with self-acceptance and positive affect. This study suggests that PLWH feel better to the extent that they assume goals that are consistent with their most genuine values and interests, and the same thing happens when they perceive that they advance toward their goals.

Secondly, in addition to their association with positive affect, our study also explores the relationships of autonomy and progress toward personal goals with self-acceptance. We found that autonomy of personal goals was directly and significantly associated with self-acceptance, but progress toward personal goals was not. However, progress toward personal goals was indirectly associated with self-acceptance, through its relationship with positive affect, which, in turn, was associated with self-acceptance, and the indirect effect was also significant. Thus, both autonomy and perceived progress toward personal goals have an impact on self-acceptance, but in different ways. Based on our results, it seems that the complex process by which people accept themselves is more strongly associated with their assuming goals that are consistent with their own interests and values rather than with the perception of progress toward these goals and values. This is important in the sense that more autonomous goals generate more effort and more achievement (Sheldon and Elliot 1998). The fact that PLWH are oriented towards goals that are consistent with their interests and values will be an important element in the promotion of persistence in this process of self-acceptance.

Thirdly, as we had hypothesised, self-acceptance was negatively and significantly associated with depression, but unexpectedly, positive affect was found not to be directly associated with depression. However, an indirect effect of positive affect on depressive symptoms was found, through the association of positive affect with self-acceptance, and of the latter with depressive symptoms, producing this indirect significant effect.

This indirect link between positive affect and depressive symptoms is an important finding of this study. Positive affect has not been directly and inversely associated with depressive symptoms, helping to create spaces for the individual's physical and psychological recovery, as would be expected from the broaden-and-build perspective of Fredrickson (2001). Rather, this finding fits with the proposition that hedonic well-being can be a source of eudaimonic well-being, which, in turn, is associated with a physically and psychologically more resilient organism (Fredrickson 2016; Ryff 2014). A hedonic variable—positive affect—is associated with a eudaimonic variable—in this study, self-acceptance—as in the way proposed by King et al. (2006).

In this study, self-acceptance was the main predictor of depressive symptoms. Self-acceptance can be understood as a process of modification and creation of identity and, therefore, of meaning, in the sense of evolving from a self that is more or less inadequate for the current situation—i.e., HIV infection—towards the construction of a self that is more adequate and adapted to the situation that the individual is undergoing (Rogers 1959). Concerning the creation of new meanings, Vittersø (2013) suggests that positive emotions are no good for this task because a mind in a pleasant state tends to avoid the necessary steps to create new conceptual frameworks. We found that self-acceptance is directly associated with the assumption of personal goals that are consistent with one's most genuine values and interests, which could be understood as an example of the process of creation of identity. However, we have also found that the experience of positive affect not only does not hinder this process but instead it seems to intensify it. That is, PLWH who propose self-concordant goals nurture their processes of self-acceptance, and the experience of advancing in these self-consistent goals is associated with a positive emotionality which, in turn, also nurtures self-acceptance. Therefore, the initial hypothesis that positive affect

would be associated with depressive symptoms is confirmed, albeit not directly, as hypothesised, but instead indirectly through its association with self-acceptance.

Regarding the relationship between eudaimonic well-being and health, Ryff et al. (2004) argue that self-realization—that is, eudaimonic well-being—leads to greater health benefits because it launches a more active organism in the face of existential challenges. We think that this proposition may well be extended to mental health. Living with HIV is no doubt an existential challenge that demands all their energy from the people who experience it. PLWH often experience stressful situations that, as a result, generate depressive states. In these situations, many PLWH permanently fight with those depressive symptoms, and one way of carrying out this struggle is through acceptance of themselves and of their illness, in a process of generating new meanings and self-affirmation (Dunbar et al. 1998). It is often a better strategy than simply wanting to feel good, which, no matter how logical it may seem, does not always produce the desired result (Ford and Mauss 2014). Therefore, self-acceptance can be understood as a strategy to cope with depressive symptoms derived from the struggles of daily life in PLWH, an effort to create meanings that help the person to carry on in the midst of difficulties and to combat the depressive symptoms experienced.

5 Strengths, Limitations and Future Directions

The hedonic and eudaimonic variables used in this study both have significant associations with depressive symptoms, although the key variable is self-acceptance. Various studies have shown that low eudaimonic well-being is a risk factor for depression (Grant et al. 2013; Lamers et al. 2015; Wood and Joseph 2010). On their part, Keyes et al. (2010) found that changes in mental health (i.e., in hedonic, eudaimonic and social well-being) were predictive of changes in psychopathology. However, in the study of Wood and Joseph (2010), there were no hedonic well-being measures, and in those of Grant et al. (2013), Keyes et al. (2010) and Lamers et al. (2015), although both types of well-being measures were taken, no difference was made between them. Therefore, our study provides a differentiated assessment of two variables' associations, one hedonic and another eudaimonic, with depressive symptoms, finding significantly different relationships between these variables and depressive symptoms.

An important issue in the study of well-being is the degree of overlapping between hedonic and eudaimonic well-being. In fact, a number of scholars have questioned that hedonic and eudaimonic well-being form separate dimensions of well-being and propose that both could be interpreted in terms of parts of the same form, due to the high degree of shared variance (Kashdan et al. 2008). In our study, the small size of the sample obliged us perform statistical analysis with PLS. This method does not allow covariance analysis, which would have been useful in this theoretical context. On another hand, only positive affect has been considered as a hedonic variable. Hedonic well-being, at least the way it is referred to in the subjective well-being construct (Diener et al. 2005), occurs when the frequency of positive affect exceeds that of negative affect, as well as a subjective perception of life satisfaction is positively evaluated. Thus to obtain a more complete contrast of the influence of hedonic and eudaimonic variables on psychopathology, a more complete evaluation of hedonic well-being is required.

As mentioned, promoting eudaimonic well-being could be a public health objective (Lamers et al. 2015; Wood and Joseph 2010), and it certainly is for PLWH. Fava et al. (2017) applied an intervention based on eudaimonic well-being for depressed persons,

which could also be the base for a eudaimonic intervention in PLWH. Our findings extend and enrich the theoretical context for these types of interventions. Firstly, it may be useful to promote the assumption among PLWH of autonomous goals regarding their everyday life, that is, goals in keeping with their most genuine interests and most profound values. This is because these goals would be associated with greater self-acceptance and positive affect, which, in turn, would be linked to lower levels of depression. Secondly, working with PLWH on their own self-acceptance processes might help to prevent depressive states. Both an in-depth analysis of more autonomous personal goals and perceived self-acceptance for PLWH can be implemented quite easily, via psycho-educational groups in the case of autonomous goals, and via groups offering more psychotherapeutic guidance in the case of self-acceptance. Such psycho-educational and psychotherapeutic interventions entail a minimal investment considering the improvement that could be made in the well-being of PLWH.

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