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Social support in newly diagnosed people living with HIV: Expectations and satisfaction along time, predictors, and mental health correlates

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Abstract

Social support usually decreases following HIV diagnosis, and decreased support is related to worsening mental health. We investigated the evolution of social support after HIV diagnosis and its relationship to anxiety, depression, and resilience, and sought to develop a social support prediction model. There were 119 newly diagnosed Spanish speakers who participated in this longitudinal study, completing measures of social support, internalized stigma, disclosure concerns, degree of disclosure, coping, anxiety, depression, and resilience. Bivariate associations and multiple regression analyses were performed. Results showed that the highest levels of support arose from friends, health care providers, and partners, and that social support decreased following diagnosis. Subsequent social support was negatively predicted by avoidance coping and positively by approach coping, steady partnership, and disclosure. It was significantly associated with decreased anxiety and depression and higher resilience. Interventions should seek to promote mental health in people living with HIV by increasing social support.

Key words: anxiety; coping; depression; HIV; resilience; social support; stigma

Social support in newly diagnosed people living with HIV: Expectations and satisfaction along time, predictors, and mental health correlates.

HIV diagnosis is a difficult experience that threatens physical and mental health, as well as social relationships (Cardona-Arias & Higueta-Gutiérrez, 2014). HIV-related stigma continues to negatively impact the health and well-being of people living with HIV (PLWH) and is known to lead to a lack of social support (Chambers et al., 2015; Su et al., 2013). Paradoxically, in times when social support is most needed, PLWH experience stigma and hostility instead (Feigin, Sapir, Patinkin, & Turner, 2013), so it comes as no surprise that anxiety and depression are highly prevalent in this population (Heywood & Lyons, 2016). A better understanding of how psychosocial variables affect social support is critical to develop future interventions to promote mental health in PLWH. We addressed this subject longitudinally by studying social support, its relationship to mental health, and its possible predictors in a sample of Spanish-speaking, newly diagnosed PLWH.

Social support is a resource that helps people face adverse situations. It refers to interpersonal interactions involving some kind of help (e.g., moral, financial, emotional, instrumental), which promotes health and well-being (Palomar Lever, Matus García, & Victorio Estrada, 2013). Social support has been posited as an essential variable for quality of life among PLWH (Remor et al., 2012) and in psychopathology prevention, with a well-documented inverse relationship between social support and anxiety and depression in PLWH (e.g., Heywood & Lyons, 2016; Rao et al., 2012). Concerning Spanish speakers, these same results have been found in Spaniards and Chileans (Carroble Isabel, Remor Bitencourt, & Rodríguez Alzamora, 2003; Cortes, Hunt, & McHale, 2014). Studies have also found a direct relationship to positive mental health outcomes such as resilience in PLWH. Resilience is defined as the outcome of

successful adaptive functioning in the presence of adverse events (Zautra & Reich, 2012), in this case, HIV diagnosis. Research has found the linkage of this particular outcome to social support in PLWH (Kang & Suh, 2015; Yu et al., 2014).

Different sources of social support have been addressed in research. In general, the literature has agreed on the relevance of support arising from relationship partners, friends, and family (Gohain & Halliday, 2014; Heywood & Lyons, 2016). However, it may also be important to consider an expanded social support network including both informal (e.g., partner, friends) and formal roles (e.g., co-workers, health care providers; Jang & Bakken, 2017; Pichon, Rossi, Ogg, Krull, & Griffin, 2015), but limited research has been conducted concerning the latter. Among Spanish-speaking PLWH, one study found that social support from health care providers was related to decreased anxiety and depressive symptoms (Carrobles Isabel et al., 2003).

A number of variables have been associated with differences in social support. Among demographic variables, having a steady partner (i.e., being married or living with a partner) has been consistently associated with higher levels of social support (Burnham et al., 2016; Rao et al., 2012). No differences were found in a study of Spanish-speaking participants regarding gender or age, although those with secondary education reported greater levels of support in comparison to those with primary education or no formal education (Remor, 2002). Finally, perceived support from health care providers has been found to be higher for Spanish participants than for Peruvians (Carrobles Isabel et al., 2003).

Concerning psychosocial variables, the literature has often mentioned coping as a key factor (Gohain & Halliday, 2014; Rueda et al., 2016). Coping has been defined as the cognitive or behavioral response to an event appraised as stressful (Moskowitz, Hult, Bussolari, & Acree, 2009). In the HIV literature, coping responses (e.g., help seeking, isolation, positive thinking)

have been organized within an approach and avoidance distinction, a higher order classification characterized by engagement with or disengagement from the stressor (Moskowitz et al., 2009). Approach coping includes coping strategies such as help seeking, while avoidant coping includes strategies such as self-isolation. Studies have investigated social support and coping as predictors of depression in PLWH, usually neglecting the relationships between these variables (e.g., Yeji et al., 2014). Based on the relationship with each other and with mental health variables, it could be expected that higher social support would be related to higher approach coping (Kang & Suh, 2015; Yu et al., 2014) and lower avoidance coping (Yeji et al., 2014).

HIV stigma is also closely related to social support, with a negative association existing between the two (Heywood & Lyons, 2016; Rao et al., 2012; Rueda et al., 2016). Several stigma-related concepts are relevant to social support. First, internalized HIV stigma (the devaluation of the self, based on one's seropositivity) is negatively related to social support (Burnham et al., 2016; Paudel & Baral, 2015). Second, HIV social stigma makes PLWH worry about other people finding out about their positive diagnosis and the possible consequences (i.e., disclosure concerns), which is associated with lower social support (Paudel & Baral, 2015). Third, PLWH tend to avoid disclosure to protect themselves and their existing relationships, a behavior that actually prevents them from accessing such social support, and is, therefore, related to lower levels of social support (Feigin et al., 2013; Heywood & Lyons, 2016; Pichon et al., 2015).

Our purpose was to study the evolution of social support arising from several sources (i.e., partners, family, friends, co-workers, and health care providers) and its possible predictors and mental health correlates in a sample of newly diagnosed, Spanish-speaking PLWH. This population has been ignored in research concerning the social and psychological aspects of HIV (Ballester-Arnal et al., 2016), despite the existence of data indicating that HIV stigma is still

highly prevalent in Spanishspeakers (Fuster, Molero, Gil de Montes, Agirrezabal, & Vitoria, 2013; Fuster-RuizdeApodaca et al., 2014) with implications for social support. Based upon the aforementioned research with PLWH, we tried to answer the following questions: (a) will social support in Spanish-speaking PLWH decrease after HIV diagnosis?; (b) will social support be related to mental health (i.e., resilience, anxiety, depression) in this population?; (c) will social support be predicted by variables found to be relevant in the literature (e.g., internalized stigma, disclosure concerns, coping, degree of disclosure) in this specific population?

Methods

Participants

Eligibility criteria for participants were: (a) at least 18 years of age, (b) diagnosis of HIV infection, (c) comfortable reading and writing in Spanish, and (d) a maximum time after HIV diagnosis of 100 days.

Instruments for Initial Assessment (T0)

Demographic characteristics included age, gender, sexual orientation, country of origin, relationship status, education level, employment status, time since diagnosis, and mode of HIV transmission (sexual intercourse, injection drugs, blood transfusion/mother-to-child, other/I don't know).

Satisfaction with prediagnosis social support was measured with four items asking to what degree the respondents were satisfied prior to HIV diagnosis with social support from each of the following sources: emotional or sexual partners, family members, friends, and co-workers. The items were answered on a five-point Likert scale (1 = *Not at all satisfied*, 5 = *Very satisfied*). The measure was inspired by and was similar to another survey used in Spanish-speaking settings (Carrobles Isabel et al., 2003).

Social support expectations were measured in a similar way, with five items asking the degree of support expected in the coming months from emotional/sexual partners, family, friends, co-workers, and health care providers. The items were answered on a five-point Likert scale (1 = *Very little support*, 5 = *A lot of support*).

Internalized stigma and disclosure concerns were assessed, respectively, with the HIV Internalized Stigma Scale and the HIV Disclosure Concerns Scale (Hernansaiz-Garrido & Alonso-Tapia, 2017). These Spanish-language self-report instruments evaluated the level of internalized stigma related to HIV during the previous month and current disclosure concerns. Each consisted of 10 items with a five-point response scale. Reliability was $\alpha = .94$ for the HIV Internalized Stigma Scale and .93 for the HIV Disclosure Concerns Scale in the original study; both were $\alpha = .90$ in our sample.

Instruments for Final Assessment (T1).

Demographic/health variables included antiretroviral therapy (ART) status (having started ART or not) and having attended an HIV-related group or association (yes/no).

Current satisfaction with social support was measured in the same fashion used for prediagnosis in T0, but this time referred to present time and added a fifth item concerning support from health care providers.

Coping strategies were assessed using an abbreviated, 24-item version of the Situated Coping Questionnaire for Adults (Alonso-Tapia, Rodríguez-Rey, Garrido-Hernansaiz, Ruiz, & Nieto, 2016), a Spanish-language measure assessing the use of eight different approach and avoidance coping strategies (approach: problem solving, positive thinking, and help seeking; avoidance: self-isolation, self-blame, rumination, emotional expression, and thinking avoidance) in the context of three types of stressful situations (personal relationships, health, and finances).

Respondents rated items on a five-point Likert scale to assess the degree to which each coping strategy was used in the previous month. Reliability of the coping strategies scores was shown to be good in the original study (McDonald's ω ranging from .90 to .97). Cronbach's α in our sample was .67 for approach coping and .87 for avoidance coping, which we deemed acceptable given the multidimensionality of the scales (Graham, 2006).

Health-related resilience was measured with a four-item subscale of the Situated Subjective Resilience Questionnaire for Adults (Hernansaiz-Garrido, Rodríguez-Rey, Alonso-Tapia, Ruiz-Díaz, & Nieto-Vizcaíno, 2014). This subscale assessed resilience in the face of stress due to health problems (e.g., *When I have had an important health issue, I have had a hard time overcoming the distress that it caused me*). Items were rated on a five-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). The subscale showed acceptable reliability in the original study ($\alpha = .72$) and was $\alpha = .69$ in our sample. Participants were instructed to respond in relation to how they had evolved psychologically after the HIV diagnosis.

Anxiety and depressive symptoms were measured with the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), a self-report measure comprised of 14 items with two seven-item subscales, one for anxiety (HADS-A) and one for depression (HADS-D). Items were rated on a four-point Likert-type scale (0 to 3). The scores of the Spanish version (Tejero, Guimerá, Farré, & Peri, 1986) have shown adequate psychometric properties in different Spanish populations, and the Spanish version has proven to be a good screening instrument (Terol-Cantero, Cabrera-Perona, & Martín-Aragón, 2015). Reliability was good for both the HADS-A ($\alpha = .85$) and the HADS-D ($\alpha = .79$) in our sample.

Degree of HIV disclosure was assessed as the responses to five items asking to how many people in each of the following groups the respondents had disclosed their HIV status:

emotional/sexual partners, family, friends, co-workers, and health care providers. The items were answered on a five-point Likert scale (1 = *None*, 2 = *1 person*, 3 = *2 people*, 4 = *3 or 4 people*, and 5 = *5 or more people*).

Procedures

A longitudinal study was designed and approval was obtained from the institutional review board at Universidad Autónoma de Madrid, Spain. Quantitative data were collected between October 2014 and November 2016. Participant recruitment was conducted in two ways. First, 92 newly diagnosed PLWH were referred to the study by staff at a health care center specializing in sexually transmitted infections. Second, several local and national HIV associations and groups from Spanish-speaking countries advertised the study on their online social networks, recruiting 74 potential participants; 22 of which were not eligible as their reported time since diagnosis was more than 100 days.

Agreement to participate was provided by 145 eligible PLWH, who completed the initial questionnaires (T0 assessment). Participants recruited through the health care center completed this assessment using pen-and-paper questionnaires in a private room after a medical appointment, and those recruited online completed the questionnaires online at a time and place of their choosing. At this assessment, participants were first instructed to reply to questions regarding prediagnosis experiences of social support. After that, they were instructed to focus on the present and then replied to items concerning social support expectations, internalized stigma, and disclosure concerns. Six months later (T1), all participants were contacted again and asked to complete the second set of questionnaires on an online platform.

To address attrition at T1 and secure completion of the assessment, we planned to make a first contact 6 months after T0, if possible by phone, and otherwise by email, and then two

subsequent reminders (again, by phone or email) 2 and 4 weeks after. A higher attrition was expected from online participants because a face-to-face personal rapport had not been established with them. Indeed, 87 of those referred by the health care center (attrition rate = 5%) completed the T1 assessment and 32 of those recruited online completed the second assessment (attrition rate = 38%), composing a final sample of 119 participants (global attrition rate = 18%).

Power and sample size calculations showed that, for a medium effect (regression weights, β , around .20) with a significance level of .05, at least 80% power, and 10 predictors in the model, a multiple regression analysis would need a sample size of $N = 114$ (Green, 1991). Our final sample had 119 participants, providing a sufficient power for the analyses performed.

Data Analysis

The overall score on social support variables (i.e., satisfaction prediagnosis, expectations, and satisfaction at T1) was computed as the mean of the item scores (range = 1-5) for comparability purposes. Descriptive univariate statistics consisted of frequencies and percentages for categorical variables and means and standard deviations (*SD*) for scale and index variables. Analyses of variance, *t*-tests, and Pearson correlations were performed to test bivariate associations between satisfaction with sources of social support at T1 and demographic variables (age, region of origin, education level, having a steady partner at T0, being on ART at T1, having attended a support group at T1) and to test mean differences among social support variables (i.e., satisfaction prediagnosis, expectations, and satisfaction at T1). Bivariate associations between the satisfaction with social support sources at T1 and hypothesized predictors (e.g., internalized stigma, coping) were assessed via Pearson's correlation coefficients.

Hypothesized predictors significantly associated with at least satisfaction with one source of social support at T1 ($p < .05$) were subsequently entered into five multiple linear regression

models, one for each source of support. No evidence was found of multicollinearity between the independent variables (all variance inflation factor and tolerance values were, respectively, < 2.5 and $> .40$; Allison, 1999). Residuals were examined for nonnormality, heteroscedasticity, and influential outliers (via Cook's distance D), and none seemed problematic. Finally, Pearson's correlations were obtained between the global social support variables and indicators of mental health (i.e., resilience, anxiety, depression). All significance levels reported are two-sided. Analyses were performed in SPSS v23 (IBM, Armonk, NY).

Results

Sample Descriptive Analyses

The sample included 119 PLWH, with 116 males (97.5%), two females, and one participant who reported gender as *other*. The mean age was 32.73 years ($SD = 8.25$), with a mean of 38.78 days since diagnosis at T0 ($SD = 20.43$) and 7.73 months at T1 ($SD = 1.19$). Fifty-seven percent were from Spain, 38.7% from Latin American countries (e.g., Venezuela, México, Argentina), and the remainder (4.2%) from other countries (e.g., Italy). Regarding sexual orientation, 86.6% were homosexual, 10.9% bisexual, and 2.5% heterosexual. More than half of the participants had an undergraduate degree (54.6%) and some had a postgraduate degree (14.3%). About a quarter (27.7%) had secondary education and a small percentage (3.4%) had, at most, a primary education. The majority were single (75.6%), 13.4% were married or living with their partner, and some were divorced/separated (10.9%). Three quarters were employed (74.8%), with 12.6% being unemployed and the rest in different conditions (e.g., student, medical leave). Less than a fifth (17.6%) were connected with an HIV-related group at T0 and a quarter were at T1 (26.1%). Most participants (93.3%) reported sexual intercourse as the mode of transmission, the rest stating that it was other or they did not know. At T1, 71.4% were taking

antiretroviral therapy.

Social Support Descriptive Statistics and Bivariate Associations with Demographic

Variables

Table 1 shows the means and standard deviations of social support variables. As can be seen, participants' highest degree of satisfaction prediagnosis (T0) was with support from friends, followed by family. Health care providers were the source of support in relation to which participants had highest expectations (T0) and satisfaction (T1), in both cases followed by friends. The lowest expectations at T0 and satisfaction at T1 were with social support from co-workers.

Social support was generally higher at prediagnosis than later in time. Participant satisfaction with global social support prediagnosis ($M = 3.60$) was better than both global expectations for the future ($M = 3.34$) and global satisfaction 6 months later ($M = 3.26$; $F[2] = 7.99$, $p < .001$). Satisfaction with pre-diagnosis support from family ($M = 3.77$) was significantly higher than expectations ($M = 3.35$), and these were also higher than satisfaction 6 months later ($M = 2.95$; $F[2] = 14.81$, $p < .001$). Concerning support from friends and co-workers, pre-diagnosis satisfaction ($M_{\text{FRIENDS}} = 4.05$; $M_{\text{WORK}} = 3.00$) was significantly higher than both expectations ($M_{\text{FRIENDS}} = 3.78$; $M_{\text{WORK}} = 2.03$) and subsequent satisfaction ($M_{\text{FRIENDS}} = 3.72$; $M_{\text{WORK}} = 2.22$; $F_{\text{FRIENDS}}[2] = 4.12$, $p = .03$; $F_{\text{WORK}}[2] = 27.31$, $p < .001$). Finally, expectations of support from health care providers ($M = 4.24$) were higher than later satisfaction ($M = 3.97$, $t[118] = 2.33$, $p = .02$). No differences emerged for support from emotional/sexual partners ($F[1.78] = 1.82$; $p = .17$), which proved to be quite stable.

Table 1

Social Support Descriptive Statistics

Source of social support	Mean (<i>SD</i>)		
	Pre-diagnosis satisfaction (T0)	Expectations for coming months (T0)	Satisfaction at T1
Emotional and/or sexual partners	3.56 (1.34)	3.29 (1.59)	3.43 (1.58)
Family *	3.77 (1.39) ^a	3.35 (1.58) ^b	2.95 (1.76) ^c
Friends *	4.05 (1.14) ^a	3.78 (1.34) ^b	3.72 (1.46) ^b
Co-workers *	3.00 (1.40) ^a	2.03 (1.21) ^b	2.22 (1.53) ^b
Health care providers *	-	4.24 (1.02) ^a	3.97 (1.15) ^b
Total	3.60 (1.02) ^a	3.34 (.91) ^b	3.26 (.99) ^b

Note. All means range = 1 - 5. * Variables with significant intra-subject mean differences. Those assessments (pre-diagnosis, expectations or at T1) with a different superscript letter show a significant mean difference between them. *SD* = Standard deviation.

Regarding differences in satisfaction with social support at T1 by demographic variables, having a steady partner emerged as significant for support from sexual/emotional partners ($t[22.98] = -3.12, p < .01$) and health care providers ($t[117] = -2.27, p < .05$). Those married or living with a partner at T0 were more satisfied at T1 with social support from their partners ($M = 4.38$) and health care providers ($M = 4.56$) than those who were single or separated/divorced ($M = 3.28$ and $M = 3.87$, respectively). No differences emerged for social support at T1 variables by age, education level, region of origin, ART status, or support group attendance ($p > .05$).

Correlations Between Satisfaction with Social Support (T1) and Potential Predictors

The correlations between satisfaction at T1 with the different sources of social support and the hypothesized predictors are presented in Table 2. Higher internalized stigma was related to lower satisfaction only with support from friends, a correlation that was negative and weak ($r = -.20$). Higher disclosure concerns showed the same weak link to lower support from friends, co-workers, and health care providers (r from $-.19$ to $-.24$). Approach coping was associated with more satisfaction with support from family, friends, and co-workers (r from $.26$ to $.29$), and avoidance coping was related to less satisfaction with support from all sources except the

partner(s) (r from $-.21$ to $-.37$). Finally, higher disclosure of HIV diagnosis to a particular potential source of support was moderately to strongly associated with higher satisfaction with support from that same source (r from $.24$ to $.60$) and nonrelated or weakly related to satisfaction with other sources of support.

Table 2

Correlations Between Satisfaction With Social Support at T1 and Hypothesized Predictors

Hypothesized Predictors	Satisfaction with support from:				
	Partner(s)	Family	Friends	Co-workers	Health Care Providers
Internalized stigma	-.08	-.15	-.20*	-.16	-.04
Disclosure concerns	-.13	-.16	-.24**	-.19*	-.19*
<i>Coping</i>					
Approach	.17	.28**	.29**	.26**	.17
Avoidance	-.18	-.21*	-.37***	-.24**	-.23*
<i>Disclosure</i>					
Partner(s)	.24**	.00	.19*	.21*	.14
Family	.09	.59***	-.06	.13	.07
Friends	.06	.04	.60***	.24*	.14
Co-workers	.11	.12	.16	.52***	.10
Health care providers	.09	.15	.18*	.15	.37***

Note. Table shows Pearson's correlations between measures; *** $p < .001$; ** $p < .01$; * $p < .05$.

Multiple Linear Regression Analyses

Based on the p -values $< .05$ in the bivariate analyses, the following variables were entered into five multiple linear regression models with satisfaction at T1, each with one of the five sources of support as the dependent variable: having a steady partner, internalized stigma, disclosure concerns, approach and avoidance coping, and degree of disclosure to each of the five social groups. The detailed results of these models are shown in Table 3. A significant regression equation was found for support from all sources: partner(s) ($F[10,118] = 2.39$, $p = .013$; $R^2 =$

.18), family ($F[10,118] = 10.80, p < .001; R^2 = .50$), friends ($F[10,118] = 10.46, p < .001; R^2 = .49$), co-workers ($F[10,118] = 6.58, p < .001; R^2 = .38$), and health care providers ($F[10,118] = 3.15, p = .001; R^2 = .23$). Internalized stigma and disclosure concerns were nonsignificant in all cases. Having a steady partner at T0 predicted satisfaction with support from partner(s) ($\beta = .28$). Approach coping predicted satisfaction with support from family, friends, and co-workers (β from .18 to .25), whereas avoidant coping predicted satisfaction with support from partner(s) and family ($\beta = -.23$ and $-.25$, respectively). Finally, the degree of disclosure to a certain source of support predicted satisfaction with such source of support to a moderate or strong degree (β from .24 to .63).

Table 3

Multiple Linear Regression of Satisfaction with Social Support Sources at T1

Criteria	Social support from				
	Partner(s)	Family	Friends	Co-workers	Health Care Providers
Steady partner	.28**	.10	.13	.06	.17
Internalized stigma	.06	-.03	-.04	-.01	.15
Disclosure concerns	.02	.02	.01	-.05	-.13
<i>Coping</i>					
Approach	.09	.24**	.16*	.23**	.12
Avoidance	-.23*	-.25**	-.16	-.18	-.18
<i>Disclosure</i>					
Partner(s)	.24*	-.11	-.17*	-.02	.01
Family	.09	.63***	-.17*	-.02	-.01
Friends	-.13	-.14	.62***	-.05	.00
Co-workers	.11	.04	.04	.54***	.06
Health care providers	-.06	.00	.09	.02	.28**
R^2	.18	.50	.49	.38	.23

Note. Model shows standardized regression weights (β) and their statistical significance. *** $p < .001$; ** $p < .01$; * $p < .05$.

Correlations Between Satisfaction with Social Support (T1) and Mental Health Variables

Correlations between social support variables (prediagnosis satisfaction, expectations, and

satisfaction at T1) and mental health indicators are presented in Table 4. All social support variables were negatively correlated with anxiety and depression (r from $-.20$ to $-.31$).

Furthermore, satisfaction with social support at T1 showed a significant positive correlation with health-related resilience ($r = .26$).

Table 4

Correlations Among Social Support Variables and Mental Health Indicators

Mental Health Indicator	Pre-diagnosis satisfaction (T0)	Expectations for coming months (T0)	Satisfaction at T1
Anxiety	$-.24^{**}$	$-.20^*$	$-.31^{**}$
Depression	$-.31^{**}$	$-.20^*$	$-.26^{**}$
Health-related resilience	.12	.17	.26**

Note. Table shows Pearson's correlations between measures; ** $p < .01$; * $p < .05$.

Discussion

We were able to describe changes in social support pre- and post-HIV diagnosis in Spanish-speaking PLWH and how social support could be predicted by relevant variables and related to mental health. A summary of the results found in our study is depicted in Figure 1.

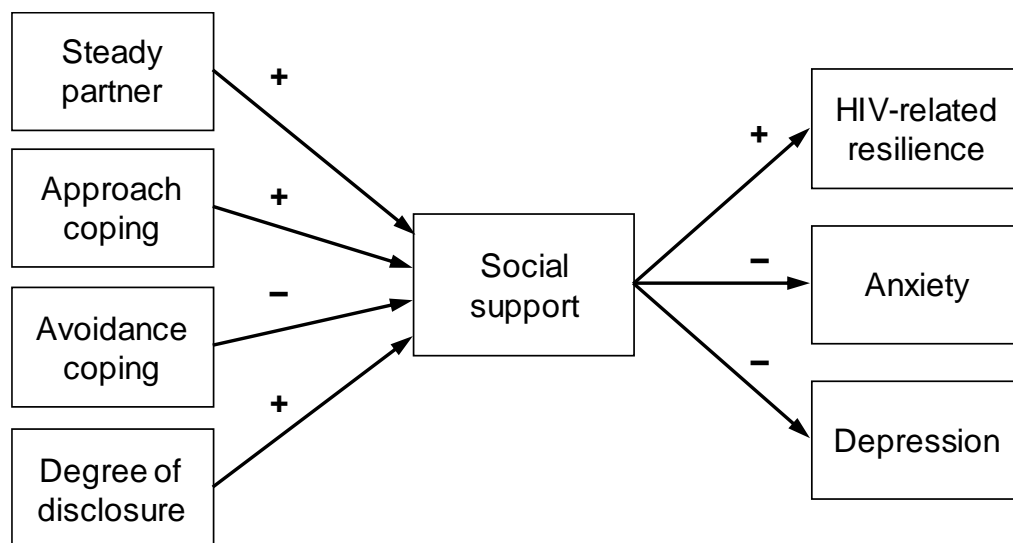


Figure 1. Social support predictors and mental health correlates.

Note. Positive relationships are represented as “+” and negative relationships as “–”.

With a possible range of mean scores of 1 to 5, the data indicated that the Spanish-speaking PLWH in our study reported, in general, moderate to high levels of social support (generally higher than 3). However, our results also showed that social support satisfaction and expectations decreased following HIV diagnosis, consistently with previous literature (Feigin et al., 2013), highlighting the additional stress that PLWH had to endure and the decreased social resources with which to do so.

No differences in satisfaction with social support sources at T1 emerged by age, consistent with another study with Spanish speakers (Remor, 2002). Unlike previous literature with Spanish speakers, there were no differences by region of origin or education level (Carroble Isabel et al., 2003; Remor, 2002), which might be due to variations in variable categories or to sample differences (e.g., only four participants had received primary education or no education in our sample). Finally, those with a steady partner at T0 were more satisfied at T1 with support from partner(s) and health care workers, consistent with literature (Burnham et al., 2016; Rao et al., 2012). The small number of women ($n = 2$) and other gender participants ($n = 1$) precluded testing for gender differences.

Our data also indicated that Spanish-speaking PLWH were highly satisfied with social support from health care providers and friends, sources that have been previously identified in the literature as relevant (Gohain & Halliday, 2014; Heywood & Lyons, 2016; Jang & Bakken, 2017; Pichon et al., 2015; Remor, 2002). Emotional or sexual partners were also an important source of support (Gohain & Halliday, 2014; Heywood & Lyons, 2016) who, in our study, remained unchanged after diagnosis, therefore, being a stable pivot of social support in times

when support from other sources could be compromised. These results stress the important role that health care providers can play by offering valuable support to newly diagnosed Spanish-speaking PLWH in a time when support from other sources may be scant. Moreover, support from partners remained unchanged throughout time, therefore being a stable source of social support that could be central to PLWH well-being.

The significance of these social support sources was underscored in our study by the fact that higher satisfaction with social support was related to better mental health. Our results were consistent with studies also finding that higher social support was associated with lower anxiety and depression (Carrobes Isabel et al., 2003; Cortes et al., 2014; Heywood & Lyons, 2016; Rao et al., 2012) and with higher resilience (Kang & Suh, 2015; Yu et al., 2014). From these results, it follows that (a) HIV diagnosis can negatively impact mental health through lower social support, and that (b) health care providers, friends, and partners play an essential role in this process. These two key aspects should be taken into account in future research and intervention design.

We also identified variables predicting satisfaction with different sources of social support around 8 months after diagnosis and integrated their contribution in regression models, which explained half of the variance in the cases of support from family and friends. Specifically, having a steady partner predicted greater satisfaction with support from partner(s), and approach coping contributed positively to predict satisfaction with support from family, friends, and co-workers; avoidance coping contributed negatively to predict satisfaction with support from partner(s) and family, and degree of disclosure to a potential source of social support contributed positively to satisfaction with support from that particular source.

These contributions were in line with previous studies showing that social support was

positively associated with active patterns of coping and disclosure and negatively related to avoidant coping (Heywood & Lyons, 2016; Kang & Suh, 2015; Pichon et al., 2015; Yu et al., 2014). The results point to the importance of fostering approach coping strategies (e.g., seek help, think positively) and discouraging avoidant coping strategies (e.g., self-isolation, self-blame), as well as taking advantage of the stable source of support that partners can offer when they exist at the moment of diagnosis. Above all, results highlighted the pivotal role that HIV disclosure to potential sources of support has, which we believe deserves future research on this particular and often ignored population. Specifically, we think that researchers should look at possible ways in which social support from partners could be increased to take advantage of the temporal stability in this population, and they should also improve disclosure techniques that allow PLWH to secure more and better social support from family and friends, because disclosure was strongly related to satisfaction with social support from these sources.

Internalized stigma and disclosure concerns showed small correlations with satisfaction with social support at T1: higher disclosure concerns were weakly related to lower satisfaction with support from friends, co-workers, and health care providers; internalized stigma showed a weak negative correlation only in the case of friends. Neither variable was a significant contributor in multiple regression analyses when all variables were considered together, so it seemed that these variables provided limited information in relation to social support, and other related aspects could impact social support more directly. For instance, actual disclosure, which emerged as the variable that contributed most, is known to be influenced by both internalized stigma and disclosure concerns (Paudel & Baral, 2015). This hypothesis should be addressed in future research and we suggest the use of structural equations modeling.

Limitations

Although our work has provided valuable information, some limitations need to be taken into account. As our results were based on data collected from PLWH from Spain and Latin America, generalization to other populations should be performed with caution. Additionally, the data collection method may have resulted in a biased sample (e.g., highly educated participants) and the use of self-report survey data had inherent limitations. The variables included in our research design were limited, as other variables could contribute to social support prediction and other important aspects of social support (e.g. type of support [instrumental, emotional]) were not accounted for. Also, the low reliability of the approach coping scale could have impacted its association with social support. Although the low reliability was due to the multidimensionality of the scale (i.e., it measured positive thinking, help seeking, problem solving), prospective research should overcome this limitation (i.e., using unidimensional scales). Future studies should aim to control for the potential effect of possible interventions and other confounding variables, and also include more assessments so that each variable would be measured at a different time-point and retrospective questions could be avoided (e.g., satisfaction with prediagnosis social support). Further research should consider and overcome these limitations to advance knowledge on social support in the context of HIV infection.

Recommendations for Intervention

Our findings have implications for the prevention of the development of mental health disorders and the promotion of positive adaptation in Spanish-speaking, newly diagnosed PLWH. First, measuring prediagnosis social support and social support expectations in this population may help identify those at risk of developing an anxiety or depression disorder. Such early identification would allow appropriate referral to a mental health professional and implementation of a prevention program that fosters the availability and quality of social support

from different sources.

Second, interventions aimed at improving resilience and preventing anxiety and depressive symptoms in PLWH could benefit from increased social support. How then can social support be increased? Our results have indicated that social support could be promoted in several ways. The role of emotional or sexual partners as stable sources of social support should be incorporated as a primary element of interventions, especially during the first months after diagnosis, when support from other sources may be weakened. Specifically, health care providers could make partner(s) aware of the important source of support that they constitute and offer assistance by providing relevant information, giving a place to ask questions or express concerns, and working with them on any stigmatizing beliefs they may have. Nonetheless, more research is necessary on this matter.

Concerning coping, social support could be increased by fostering active coping strategies such as problem solving, positive thinking, and help seeking, and discouraging the use of avoidant strategies such as rumination, emotional expression, self-isolation, self-blame, and thinking avoidance. This could be achieved through individual psychotherapy (e.g., coping training) or group workshops. More importantly, disclosure of HIV to potential sources of support should be promoted, as it is directly related to higher social support. Specifically, interventions seeking to increase disclosure should address and challenge disclosure concerns. To this end, support groups are known to decrease disclosure concerns, offer opportunities to rehearse disclosure, decrease social isolation, and constitute a source of social support (Paudel & Baral, 2015). However, future research is needed that addresses which are the best ways to disclose the HIV diagnosis to each source of social support (e.g., family, friends) in this population of Spanish-speaking PLWH.

Moreover, as our results have shown, health care providers can be a very important source of social support for newly diagnosed, Spanish-speaking PLWH, and so it is fundamental that they actively offer social support by providing accurate information and health care, referring to other social resources, and offering the opportunity for patients to express and discuss emotions and concerns (Jang & Bakken, 2017). Additionally, health care providers can help PLWH work toward disclosing their serostatus to others. For providers to be a positive source of support, it is important that they clarify personal values and attitudes so that they can create safe and stigma-free spaces in health care settings (e.g., no breaches of confidentiality, negative attitudes, differential treatment, unrealistic fears of infection, or unnecessary levels of isolation; Chambers et al., 2015). Thus, it may be necessary to work with health care providers to challenge their stigmatizing beliefs and provide them with strategies to challenge the stigmatizing beliefs of PLWH and others.

Support groups for partners, friends, health care providers, and family may be a useful tool to challenge hostile attitudes, provide accurate information, and enable them to offer improved social support to PLWH. Indeed, eliminating stigma is emphasized as a key element for achieving the aims of 90–90–90, the HIV reduction strategy, which has a target of 90% of PLWH being diagnosed, 90% on ART, and 90% achieving viral suppression by 2020 (Joint United Nations Programme on HIV/AIDS, 2014). Reducing HIV stigma would undeniably increase social support. Although we have focused on variables easier to modify in the short term, global stigma reduction should be a goal for every health care and community setting.

Conclusion

Social support has emerged as highly relevant to psychopathology prevention and mental health promotion. Social support is negatively impacted following HIV diagnosis and may be

predicted and influenced by coping and disclosure behaviors. More research is needed to clarify these relationships, but their impact on social support has been consistently shown in the literature and, thus, should be addressed in research and in comprehensive interventions to promote better social support for PLWH.

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Key Considerations

- Spanish-speaking, newly-diagnosed people living with HIV (PLWH) with low levels of social support are at risk of developing mental health issues and should be referred to mental health care.
- Mental health can be improved by increasing social support.
- Active coping strategies should be promoted while avoidant coping strategies should be discouraged.
- Partners constitute a stable source of support and should be provided with resources so that they can offer their partners living with HIV the best support possible.
- Disclosure of HIV diagnosis to potential sources of support should be fostered in Spanish-speaking PLWH, specially disclosure to family, friends, and health care providers.
- Health care providers are a fundamental source of support. As such, they need to offer the best support possible in a non-judgmental, stigma-free manner.