

The use of online social media for the recruitment of people living with HIV in Spain and Latin America: Lessons from two studies

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Abstract

Various barriers make recruiting a difficult task for researchers, especially when recruiting people living with HIV (PLWH) or conducting longitudinal studies. Effective recruitment is crucial to the validity of studies, and in this regard, social media can come to aid, although researchers usually rely on paid advertisements. This paper describes the free social media strategies used for participant recruitment in two studies carried out with PLWH in Spain and Latin America. Study 1 was a cross-sectional study on the validation of two stigma scales with a 1-month retest. Study 2 was a longitudinal study exploring the mental health of newly diagnosed PLWH, with a second assessment after 6 months. Facebook posts, Twitter mentions, and discussion forums were used in both studies. Study 2 also recruited participants through a healthcare centre. In Study 1, 5-month recruitment yielded a sample of 458 PLWH, averaging 91.6 surveys/month and a 43% retention rate. In study 2, recruitment took 16 months, yielding a final sample of 145 newly diagnosed PLWH, 92 from the healthcare centre (5.75 surveys/month) and 53 from social media (3.31 surveys/month), with 95% and 60% retention rates, respectively. Participants in Study 2 did not differ in sociodemographic characteristics by recruitment method, except for the region of origin and financial difficulty (more diverse origin and greater difficulty emerged in social media participants). Greater psychological distress and lower personal and social resources were also found in social media participants. These data indicate that free social media recruitment is a feasible and effective tool for the recruitment of Spanish-speaking PLWH, although it is best used in combination with traditional methods for newly diagnosed PLWH and longitudinal studies.

KEYWORDS

HIV/AIDS, Latin America, online, recruitment, research, social media, Spain

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1 | INTRODUCTION

Failure to recruit a large, representative sample threatens the internal and external validity of studies, depriving researchers and communities of important knowledge (Yuan et al., 2014). Researchers have encountered multiple barriers in recruiting people living with HIV (PLWH), including barriers related to transportation, lack of time and financial resources, mistrust of research and HIV-related stigma (Gama et al., 2017; Yuan et al., 2014). Stigma and fear of self-disclosure are also usual barriers to recruitment in mental health studies (Sanchez et al., 2020). This can preclude effective participant recruitment – something that is crucially important to achieve sufficient sample sizes and reduced biases, which are core requirements for data analyses (Gaupp-Berghausen et al., 2019; Welch, 2020; Yuan et al., 2014). This is especially challenging for longitudinal studies, which have a high response burden for participants (Gaupp-Berghausen et al., 2019; Pratap et al., 2019) and tend to suffer from low retention rates between assessments (Bennetts et al., 2019).

Accordingly, internet-based participant recruitment can offer certain advantages over conventional approaches (Gaupp-Berghausen et al., 2019; Yuan et al., 2014), especially for hard-to-reach, stigmatised populations (Russomanno et al., 2019; Sanchez et al., 2020). However, limited information exists on this matter, and more studies are needed on the effectiveness of social media recruitment in specific groups (Topolovec-Vranic & Natarajan, 2016), such as PLWH living in Spain and Latin America, which is the goal of this paper.

In conjunction with web-based surveys, social media offers great potential for participant recruitment as the continuous increase in their use can provide a widespread outreach in little time (Gaupp-Berghausen et al., 2019). For instance, Facebook, a platform that boasts over two billion monthly users located all over the world, enables content to be posted to groups about health topics (e.g. HIV) and allows for paid targeted advertising (Gaupp-Berghausen et al., 2019; Hulbert-Williams et al., 2019). Twitter has around 321 million monthly users (Hulbert-Williams et al., 2019), and tweets can be shared very easily, including keywords (hashtags), to reach interested users. In addition, social media offers other advantages, such as reduced shipping costs and time, quicker recruitment, environmental sustainability (Hulbert-Williams et al., 2019; Sanchez et al., 2020; Whitaker et al., 2017) and real-time monitoring for optimising recruitment efforts (Gaupp-Berghausen et al., 2019).

As found in three recent reviews (Sanchez et al., 2020; Topolovec-Vranic & Natarajan, 2016; Whitaker et al., 2017), online social media is increasingly being used in health research for participant recruitment, especially in the fields of medicine and psychology. In this regard, Facebook is by far the most used platform, followed by Twitter. However, few studies have rigorously assessed the effectiveness of social media compared with conventional methods in terms of recruitment rates and costs, sample representativeness and retention (Bennetts et al., 2019), finding mixed results in a variety of populations. Although some research suggests that both methods are equally successful (Motoki et al., 2017), other studies have found social media to be more effective with lower costs

What is known about this topic?

- Recruiting people living with HIV (PLWH) in studies is a difficult task.
- Social media is effective for recruiting hard-to-reach, stigmatised populations, but it presents challenges, such as sample representativeness and cost.
- Little is known about recruiting PLWH through social media, especially in Spain and Latin America.

What does this paper add?

- Social media is an efficient strategy for Spanish-speaking PLWH recruitment, it can be used for free, and it provides representative and diverse samples.
- Newly diagnosed PLWH are substantially harder to reach, and social media recruitment results in a lower retention rate in longitudinal studies – in those cases, social media may work best as an ancillary method

and less biased samples (Benedict et al., 2019; Hulbert-Williams et al., 2019; Martinez et al., 2014; Sanchez et al., 2020). Another study found that social media was more effective in terms of time (2.5 times faster) but not cost (Kayrouz et al., 2016). However, there is currently no research that compares both methods with PLWH in general or, more specifically, Spanish-speaking PLWH.

As mentioned, social media has great potential for recruiting hard-to-reach, stigmatised populations (Gaupp-Berghausen et al., 2019; Russomanno et al., 2019; Sanchez et al., 2020; Yuan et al., 2014). This may be because studies that employ conventional methods experience difficulty in finding enough participants with certain conditions, such as HIV (Yuan et al., 2014), whereas social media may offer an effective way to reach these groups – nevertheless, the latter is best used in combination with traditional methods (Kayrouz et al., 2016; Sanchez et al., 2020; Topolovec-Vranic & Natarajan, 2016).

Social media usage also presents some challenges, for example, sample representativeness. Some studies have found biased samples (Benedict et al., 2019; Keaver et al., 2019; Sanchez et al., 2020; Topolovec-Vranic & Natarajan, 2016; Whitaker et al., 2017), with online participants being younger or older, more female, more white, with a higher or lower education level, or with a higher socioeconomic status. However, other studies have reported demographically and clinically representative samples (Sanchez et al., 2020; Thornton et al., 2016). Specifically, in stigmatised or hard-to-reach populations, social media has resulted in more representative samples (Hulbert-Williams et al., 2019; Whitaker et al., 2017; Yuan et al., 2014). This may be because online surveys afford greater privacy and anonymity (Yuan et al., 2014), which make participants more prone to participate and withhold less information (Motoki et al., 2017). Nevertheless, the role of social media recruitment in potential sample bias is not well understood (Benedict et al., 2019), especially with PLWH.

Another challenge is participant mistrust (Yuan et al., 2014). In biomedically focused research, participant mistrust has been shown to be lower if the study is university-led and is unequivocally identified as such (Pratap et al., 2019). Financial incentives are also worth considering since they can attract participants (Yuan et al., 2014) but also result in multiple responses by the same participant if no restrictions are implemented (Quach et al., 2013). Non-financial incentives can be another strategic approach to increase recruitment, for instance, by providing interesting information (Yuan et al., 2014) or reducing the perception of response burden.

The cost of social media recruitment also merits consideration. Most social media recruitment (Ford et al., 2019; Hulbert-Williams et al., 2019; Kayrouz et al., 2016; Motoki et al., 2017) makes use of paid advertising (Thornton et al., 2016), demonstrating similar cost-effectiveness to conventional methods (Kayrouz et al., 2016). However, social media can also be an effective way to recruit free of charge (Sanchez et al., 2020; Thornton et al., 2016). For instance, Hulbert-Williams et al. (2019) placed free ads directly on cancer-specific Facebook pages in addition to paid advertisements, and Yuan et al., 2014 applied the same method on HIV-specific Facebook groups. Davies and Kotter (2018) comparison concluded that 60% of survey responses came from free strategies (as opposed to fee-based ads), with Facebook being the most successful. This could be of special importance for researchers in countries such as Spain with shrinking resources and insufficient spending on research (Cruz-Castro & Sanz-Menéndez, 2016; Moro-Martín, 2018; Padilla et al., 2014) – particularly in the field of mental health research (Hazo et al., 2017).

As argued above, little is known regarding the effectiveness of social media recruitment of PLWH. Specifically, there is a lack of data on Spanish-speaking PLWH living in Spain and Latin America. Indeed, two reviews on medical and healthcare research (Topolovec-Vranic & Natarajan, 2016; Whitaker et al., 2017) revealed no studies carried out in Spain or Latin America, and only one (Yuan et al., 2014) was found on the topic of HIV. This gap in the literature motivates the present study, which aims 1) to describe the free online strategies used for participant recruitment in two studies carried out with PLWH in Spain and Latin America (one cross-sectional and one longitudinal) and 2) to assess the effectiveness of these strategies (in terms of recruitment rates and cost, sample representativeness, and retention) compared with conventional (clinic-based) recruitment. Furthermore, the differences in participant characteristics and reported outcomes will be explored.

2 | METHODS

2.1 | Study 1: Design and data collection

Study 1 aimed to develop and validate two scales assessing HIV-related internalised stigma and disclosure concerns (Hernansaiz-Garrido & Alonso-Tapia, 2017). It was approved by the ethical committee at the Autonomous University of Madrid (UAM, reference CEI42-864, February 2013). The study involved a cross-sectional survey that used online social media to recruit PLWH in Spain and

Latin American countries. The participants had to be 18 years old or over, have an HIV diagnosis and be comfortable speaking Spanish. The participants provided information on sociodemographic variables and completed measures of HIV-related stigma, self-esteem, anxiety and depression. Recruitment was carried out through online social media (Facebook, Twitter and two online HIV-related discussion forums) over approximately 5 months (from 12 August 2014 to 4 February 2015). Despite the cross-sectional nature of the study, for reliability purposes, willing participants provided their email and 4 weeks later were emailed a link for a retest survey to test the temporal stability of the stigma scales. Retest data were collected from September 2014 to February 2015.

2.2 | Study 2: Design and data collection

Study 2 explored how certain variables (e.g. resilience, coping, social support, internalised stigma, and stress) could help predict positive (i.e. HIV-related resilience, posttraumatic growth; Garrido-Hernansaiz et al., 2017) and negative (i.e. anxiety, depression; Garrido-Hernansaiz & Alonso-Tapia, 2020) mental health outcomes over 6 months following HIV diagnosis. The study was approved by the ethical committee at UAM (reference CEI42-864, February 2013). The participants were newly diagnosed PLWH in Spain and Latin America and had to be 18 years old or over, have an HIV infection diagnosed in the last 100 days and be comfortable speaking Spanish. They provided information on sociodemographic variables and completed measures of the aforementioned variables. Newly diagnosed PLWH were invited to take part in the study through either social media (Facebook, Twitter and two online HIV-related discussion forums) or conventional methods (face-to-face recruitment in a healthcare centre specialising in sexually transmitted infections in Madrid, Spain). The conventional recruitment took place from 30 September 2014 to 1 February 2016 (approximately 16 months), and these participants completed pen-and-paper questionnaires at the healthcare centre. The social media recruitment started later, from 22 January 2015 to 18 May 2016 (approximately 16 months), and these participants completed the survey online at a time and place of their choosing. All the participants were recontacted 6 months after their participation via phone (for those recruited through the healthcare centre) or email (for those recruited through social media) to carry out the second assessment of the study, which was completed online via a web-based survey regardless of the original recruitment method, and two subsequent reminders were given 2 and 4 weeks later. This second data collection was carried out from April 2015 to November 2016.

2.3 | Participant social media recruitment and research engagement

Participant recruitment through online social media was carried out in both studies via Facebook, Twitter and two online discussion forums on the topic of HIV where PLWH shared their experiences, commented on the experiences of others, and asked questions.

	N (%)	Mo	Surveys/Mo	Retention rate
Study 1				
Social media	458 (100%)	5	91.6	42.96% ^a ; 27.29% ^b
Study 2				
Healthcare centre	92 (63.45%)	16	5.75	94.57%
Social media	53 (36.55%)	16	3.31	60.38%

Note: Mo = recruitment duration in months.

^aPercentage calculated on the basis of the participants who consented to be contacted again ($n = 291$).

^bPercentage calculated on the basis of the total sample ($N = 458$).

The first strategy used involved approaching several national and local HIV associations and organisations to request collaboration. One association showed particular interest and wrote a letter to CESIDA – the State Coordinator for HIV and AIDS in Spain – stating its collaboration with the study and including information about it and how to share it on social media. This strategy proved quite unsuccessful and, therefore, was not used in Study 2, which relied only on the other strategies described, which took a more direct approach.

Concerning Facebook, the researcher sent personalised direct messages on behalf of the study to the administrators of 31 HIV/AIDS-related Facebook groups (public and private) in Spanish. The private groups required administrator permission to join. The messages contained information about the study and a link to the survey and expressed an interest in reposting the study link on the group feed to advertise for recruitment. The researcher finally joined 22 groups totalling 55,246 members and posted the study information (including the researcher's name and university of affiliation) and the survey link, highlighting the short amount of time it required to be completed. Reminders were sent approximately once every 2 months.

Regarding Twitter, a shorter version of the study information was generated to fit within the 140-character limit, highlighting the topic of psychological health, the opportunity to help others by collaborating, and the short nature of the survey to increase participation. The Twitter account details included the name of the researcher and university of affiliation. Tweets were posted directly to 63 (Study 1) and 76 (Study 2) HIV-related organisations, with a request to retweet, using hashtags to increase the visibility of the studies. In Study 1, 18 of the targeted organisations retweeted, and 21 other non-targeted accounts also did so. In Study 2, it was retweeted and favoured, respectively, by 21 and 8 of the targeted organisations and by 30 and 6 non-targeted accounts.

Finally, posts were made available on two online HIV-related discussion forums in Spanish, identifying the researcher and university, providing information about the study, and inviting interested participants to follow the link to the online survey. The quick nature of the collaboration was also mentioned. One reminder was sent, and questions posed by forum members were answered. The post of Study 1 was viewed 5,581 times on one forum and 623 on the other. Study 2 was viewed 4,019 times on one forum and 493 on the other.

The surveys were hosted on a website specially developed for the studies. The first page required the participants to read the

study information (including the inclusion criteria) and give consent to participate. The surveys were administered through LimeSurvey, a web-based platform that formats the survey appropriately according to screen dimensions and device type. Given the lack of monetary incentives, multiple survey attempts were not a great risk for these studies. The surveys were kept as short as possible to incentivise participation, which, as previously stated, was emphasised in all social media posts.

2.4 | Data analyses

Descriptive analyses were carried out to evaluate the effectiveness of the recruitment methods in each study. For both studies, the total number of recruited participants per method was computed, as well as the average number of surveys received per month and the retention rate between the first and the second assessment. Finally, for Study 2, the differences between conventional and social media recruitment groups were explored regarding demographic characteristics (i.e. age, gender, time since diagnosis, sexual orientation, country of origin, educational level, relationship status, employment status, financial difficulty, connection with a non-profit organisation [NPO] and mode of HIV transmission) and the main variables of the first assessment (i.e. health-related resilience, perceived social support, stress and internalised stigma). Student's t -tests were computed to study mean differences (continuous variables), and χ^2 tests were computed to examine differences in proportions (categorical variables). Appropriate effect size statistics that adjust for differences in group sizes were obtained – Hedges' g for t -tests and Cramér's V for χ^2 tests.

All statistical analyses were conducted using the Statistical Product and Service Solutions (SPSS), version 27.

3 | RESULTS

3.1 | Recruitment effectiveness and retention rate

Table 1 shows the data summary for the recruitment effectiveness of both studies. In Study 1, a total of 458 PLWH completed the first survey, with an average of 91.6 surveys/month. All the participants

TABLE 1 Recruitment effectiveness and retention rate

met the inclusion criteria (i.e. 18 years old or over, comfortable speaking Spanish and HIV diagnosis). Readers interested in the demographic characteristics of the sample can refer to a previous article (Hernansaiz-Garrido & Alonso-Tapia, 2017) for more details. The mean age was 36.6 years ($SD = 10.3$) and a mean of 78.9 months since diagnosis had passed ($SD = 87.21$). Most of the participants were male, Spanish, single, homosexual, holders of a university degree, employed and with little economic difficulty. The majority had acquired HIV through sexual activity and were on HIV medication. Concerning the retention rate, 291 participants (63.54%) consented to be contacted again after four weeks. Of these, 125 (42.96%) completed the second assessment. The retention rate over the total initial sample was 27.29%.

In Study 2, a total of 164 recently diagnosed PLWH completed the first survey. Of these, 92 were direct referrals from the healthcare centre (all of which met the inclusion criteria), and 72 were recruited through social media (of which 19 were removed because the time since diagnosis exceeded 100 days). Thus, the final sample was composed of 145 participants, of which 53 (36.55%) were effectively recruited by online means. The final average number of surveys per month was 5.75 for healthcare referrals and 3.31 for social media recruitment. Regarding the retention rate, 87 of the 92 referred by the healthcare centre completed the second assessment (retention rate = 94.57%), whereas 32 of the 53 recruited online did so (retention rate = 60.38%).

3.2 | Demographic and psychological differences in Study 2

Table 2 shows the demographic characteristics of the participants recruited into Study 2, along with tests for differences between the recruitment methods. The analyses revealed no significant differences for age, days since diagnosis, gender, sexual orientation, educational level, relationship status, employment status, being in connection with an NPO or having acquired the HIV through sexual transmission ($p > .05$ in all cases). However, small effect sizes were found for gender, sexual orientation and relationship status ($V = 0.14, 0.20, \text{ and } 0.16$, respectively). A significant difference emerged for financial difficulty – those recruited through online social media perceived a significantly greater difficulty in coping with being HIV-positive ($p = .02$; small effect size, $g = 0.42$). A significant difference was also found regarding the region of origin ($p < .001$; large effect size, $V = 0.52$). Recruitment through social media yielded a more diverse sample from various Latin American countries (e.g. Mexico, Colombia, and Venezuela) than recruitment through the healthcare centre (where participants were primarily born in Spain, 70.7%).

Finally, Table 3 shows the descriptive statistics and mean difference tests on the psychological constructs measured in the first assessment. Significant differences emerged for the four variables, indicating that the social media participants showed lower pre-diagnosis health-related resilience ($p = .002$; medium effect size,

$g = 0.53$) and social support ($p < .001$; medium effect size, $g = 0.67$) and higher internalised stigma ($p = .04$; small effect size, $g = 0.35$) and stress ($p = .02$; small effect size, $g = 0.40$) than the participants referred by the healthcare centre.

4 | DISCUSSION

This study described and assessed the effectiveness of the social media strategies used for recruiting Spanish-speaking PLWH into two studies and examined the differences in participant characteristics and study outcomes between online and offline participants. In Study 1, $N = 458$ participants were recruited through social media over 5 months free of charge, averaging 91.6 survey responses per month. The retention rate over those who consented to be contacted again was 43%, which allowed for all necessary analyses to be performed. Overall, social media was an efficient form of recruitment with this population, helping to achieve the study goals.

In Study 2, $N = 145$ qualified participants were recruited over 16 months. Data collection took much longer than in Study 1, and the sample size was much smaller due to the study's focus on newly diagnosed Spanish-speaking PLWH (i.e. a time since diagnosis no longer than 100 days was required). When comparing the two recruitment methods, the healthcare centre proved the most effective. It provided 63% of the participants, all of whom met the inclusion criteria, and the retention rate (95%) was excellent (probably because face-to-face rapport was established between the researcher and the participants; Bennetts et al., 2019). Meanwhile, social media provided 37% of the sample – a considerable proportion that helped to achieve sufficient statistical power to carry out the study analyses. The participant retention rate (60%) was lower than in the healthcare centre group but higher than in Study 1 and similar to the rate found in an Australian online study (58%), which recruited parents online (Bennetts et al., 2019).

Concerning the role of the recruitment method in the differences observed in personal characteristics and study variables, social media participants tended to display lower levels of resilience and social support and higher levels of perceived financial difficulty, internalised stigma and stress. This is consistent with previous research indicating that social media participants experience greater psychological distress (Bennetts et al., 2019). However, no significant differences emerged regarding age, gender, sexual orientation, days since diagnosis, educational level, relationship status, employment status, connection with an NPO or mode of HIV transmission. Although contrary to some studies that did detect such variations (Benedict et al., 2019; Keaver et al., 2019; Topolovec-Vranic & Natarajan, 2016; Whitaker et al., 2017), this finding is in line with other research studies that found either equally representative samples (Sanchez et al., 2020; Thornton et al., 2016) or more representative samples in online recruitment, especially in the case of hard-to-reach populations (Hulbert-Williams et al., 2019; Whitaker et al., 2017). However, some methodological considerations ought to be made about these non-significant results. The literature on

TABLE 2 Differences in demographic characteristics of Study 2 participants at the first survey by the recruitment method

	Healthcare referrals (N = 92)	Social media (N = 53)	t (p)	Hedges' g
	M (SD)	M (SD)		
Age	33.57 (8.79)	31.60 (8.09)	1.33 (0.19)	0.23
Days since diagnosis	36.64 (16.44)	37.00 (26.15)	-0.09 (0.93)	0.02
Financial difficulty	1.98 (2.27)	2.87 (1.78)	-2.45 (0.02)	0.42
	N (%)	N (%)	χ^2 (p)	Cramér's V
Gender			2.73 (0.10)	0.14
Men	90 (97.8%)	48 (90.6%)		
Women	1 (1.1%)	3 (5.7%)		
Other ^a	1 (1.1%)	2 (3.8%)		
Sexual orientation			5.60 (0.06)	0.20
Homosexual	82 (89.1%)	39 (73.6%)		
Bisexual	7 (7.6%)	7 (13.2%)		
Heterosexual	3 (3.3%)	6 (11.3%)		
Other ^a	-	1 (1.9%)		
Region of origin			39.11 (< 0.001)	0.52
Spain	65 (70.7%)	11 (20.8%)		
Latin America	22 (23.9%)	41 (77.4%)		
Other	5 (5.4%)	1 (1.8%)		
Educational level			1.46 (0.48)	0.10
Secondary or lower	33 (35.9%)	15 (28.3%)		
Graduate	46 (50.0%)	32 (60.4%)		
Post-graduate	13 (14.1%)	6 (11.3%)		
Relationship status			3.79 (0.15)	0.16
Single	65 (70.7%)	45 (84.9%)		
Married or cohabiting	15 (16.3%)	4 (7.5%)		
Divorced/separated	12 (13%)	4 (7.5%)		
Currently employed	69 (75%)	38 (71.7%)	0.19 (0.66)	0.04
In connection with an NPO	17 (18.5%)	8 (15.1%)	0.27 (0.60)	0.04
Sexual transmission ^b	87 (94.6%)	48 (90.6%)	0.84 (0.36)	0.08

Note: Differences in continuous variables were assessed via t-test, and Hedges' g effect size statistic was obtained (interpretation: negligible < 0.20 < small < 0.50 < medium < 0.80 < large). For categorical variables, χ^2 was used and the effect size was assessed via Cramér's V (interpretation: negligible < 0.10 < small < 0.30 < medium < 0.50 < large).

^aThis group was excluded from the analysis because of very few participants.

^bParticipants who did not indicate sexual transmission indicated 'I don't know/Other'. No participants reported drug injection or pregnancy/blood transfusion as a means of HIV transmission.

research methodology points out that decisions on the relevance of results must consider not only *p* values but also effect sizes (e.g. Sun et al., 2010). This is especially important when the comparison analyses involve one or more small subsamples (as was the case in this study) because *p* values are highly influenced by sample size. Considering this, the effect sizes found in this study suggest that the social media participants may be more diverse regarding their gender and sexual orientation (i.e. there were more women, non-binary people and heterosexual participants) and less diverse in terms of relationship status (i.e. there were more single participants). These results must be regarded with caution since previous studies on this topic did not report effect sizes. In addition, future research with

larger samples is needed, and researchers are also urged to report effect sizes.

Taken as a whole, the results of this study suggest that social media recruitment, in conjunction with online data collection, is an efficient strategy for research with Spanish-speaking PLWH. This study was able to potentially reach thousands of Spanish-speaking PLWH, allowing for the successful recruitment of participants from a hard-to-reach, stigmatised population (Gaupp-Berghausen et al., 2019; Russomanno et al., 2019; Sanchez et al., 2020; Yuan et al., 2014) while overcoming the existing stigma and other barriers (Gama et al., 2017; Yuan et al., 2014). Facebook, Twitter and online HIV-related discussion forums were, on the whole, effective strategies,

TABLE 3 Differences in the main variables of the first survey in Study 2 participants by the recruitment method

Measure	Healthcare referrals (N = 92)	Social media (N = 53)	t (p)	Hedges' g
	M (SD)	M (SD)		
Health-related resilience	10.59 (2.78)	9.11 (2.74)	3.11 (0.002)	0.53
Social support	3.76 (0.93)	3.09 (1.13)	3.89 (< 0.001)	0.67
Internalised stigma	20.95 (7.71)	23.76 (8.32)	-2.05 (0.04)	0.35
Stress	16.62 (4.54)	18.40 (4.25)	-2.33 (0.02)	0.40

Note: Differences in continuous variables were assessed via t-test, and Hedges' g effect size statistic was obtained (interpretation: negligible < 0.20 < small < 0.50 < medium < 0.80 < large).

as indicated by previous research (Dol et al., 2019; Topolovec-Vranic & Natarajan, 2016). However, the number of survey responses that originated in each social network was not measured, which prevented the corresponding comparisons from being performed.

Moreover, social media and online data collection reduced the costs associated with printing questionnaires, saved time as data input was not necessary, were more environmentally friendly and made it possible to monitor the recruitment process in real time and adapt the strategies used (i.e. increase the activity on Facebook, Twitter, or the forums), as previous research had described (Gaupp-Berghausen et al., 2019; Hulbert-Williams et al., 2019; Whitaker et al., 2017). Furthermore, in line with previous studies (Davies & Kotter, 2018; Hulbert-Williams et al., 2019; Yuan et al., 2014), the results show that social media can be useful at no charge (Sanchez et al., 2020; Thornton et al., 2016). This is relevant not only for researchers in Spain (Cruz-Castro & Sanz-Menéndez, 2016; Moro-Martín, 2018) and other countries where science is underfunded but also in general due to the increasing global pressure to minimise research costs (Bennetts et al., 2019; Edwards & Roy, 2017).

The results also point out that studies with follow-up assessments pose a challenge for researchers, as the retention rate for participants recruited online is appreciably lower than for participants recruited in a more conventional way, such as at a healthcare centre. This is in line with previous literature (Gaupp-Berghausen et al., 2019; Pratap et al., 2019) and may reflect lower engagement for social media participants in comparison with those recruited face-to-face (Frandsen et al., 2016). The data also supported the idea that the newly diagnosed sub-population is substantially harder to reach. Thus, social media may work best as an ancillary method to conventional options in the particular case of newly diagnosed individuals and longitudinal studies (Kayrouz et al., 2016). The combination of both methods can help researchers achieve an adequate sample size with reduced bias, allowing for the necessary empirical data analyses and preserving the internal and external validity of the study (Gaupp-Berghausen et al., 2019; Welch, 2020; Yuan et al., 2014).

Some limitations of the present study merit discussion. As mentioned, comparisons between social media methods were not performed, and thus no assertions can be made about the respective effectiveness of each one. Moreover, the time spent by researchers posting on social media should have been measured to obtain a more

precise view of the cost-effectiveness of strategies in terms not only of money but also time, as it correlates with the number of participants effectively recruited (Topolovec-Vranic & Natarajan, 2016). Another caveat is the possibility that the participants could have provided false information or multiple responses since online data collection makes information verification more difficult (Topolovec-Vranic & Natarajan, 2016). However, because no financial incentives were offered (Quach et al., 2013) and online surveys afford higher privacy and anonymity (Motoki et al., 2017; Yuan et al., 2014), this risk was low. Furthermore, online social media recruitment may have biased the sample against those without access to the internet or not using social media networks (Hulbert-Williams et al., 2019). In addition, as recruited participants are more motivated than the individuals that choose not to participate, a self-selection bias applies to both recruitment methods, so it may be that neither sample is representative of the actual population (Topolovec-Vranic & Natarajan, 2016).

The success of recruitment through social media in these studies might be partially attributed to the steps taken to reduce participant mistrust (the researcher and university were clearly identified; Pratap et al., 2019) and response burden (quick collaboration was anticipated in social media posts as a non-financial incentive; Yuan et al., 2014). However, no comparison was established with online posts that did not identify the researcher or university or anticipate a low response burden. Future research should explore these matters in more depth to gain a better understanding of how these aspects can help to increase the online reach of studies. It should also ascertain whether there is a difference in the effectiveness of social media recruitment between Spanish-speaking countries or regions. More data on online recruitment is needed in this hard-to-reach population, especially concerning how to increase retention rates, which seems to be a critical challenge. Additionally, some light needs to be shed on the issue of sample representativeness in the specific populations of PLWH in general and Spanish-speaking PLWH in particular.

Social media outlets evolve rapidly, with different networks gaining popularity depending on the population (Dol et al., 2019). This poses a challenge for researchers, who must adapt their recruitment efforts. Specifically, as the use of Facebook is declining among the younger population (Ford et al., 2019), future research should consider newer social networks that are more popular among young

adults, such as YouTube, Instagram, and Snapchat (Dol et al., 2019; Ford et al., 2019). This is also important for newly diagnosed PLWH, whose mean age in Study 2 was around 32 years. In the coming years, fewer members of this age group will use Facebook and Twitter, and more will use, for instance, Instagram or TikTok (Anderson, 2020; Dol et al., 2019; Pavlik, 2020).

This study has added data to the non-existent literature on the recruitment of Spanish-speaking PLWH from Spain and Latin America through social media. The results have also contributed to the emerging field exploring the recruitment of PLWH in general, suggesting that social media can be a valuable tool to reach out to those most vulnerable – in terms of lower personal, social, and financial resources – and in need of professional psychosocial help. It is fundamental to include these groups in research and intervention design. However, social media should not be used on its own for newly diagnosed populations or longitudinal studies as its power decreases considerably in these circumstances.

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CONFLICT OF INTEREST

The author declares that there are no interests to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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