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Resilience, Physical Activity, and Depression in Women Living With HIV in the San Francisco Bay Area: A Cross-sectional Study

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1 **Abstract**

2   There is a lack of literature on the effects of physical activity and depression on resilience

3 in women living with HIV. This cross-sectional study examined the associations of

4 sociodemographic factors, physical activity, and depression on resilience among 97 women

5 living with HIV using linear regression models. Among these women, the mean resilience score

6 was 70.7 (SD 16.3), the majority were insufficiently active (67.0%), and 45.4% had a PHQ-9

7 score that indicated at least moderate depression. In a multivariable analysis, depression was

8 negatively associated with resilience, and education was positively associated with resilience (p

9 $< .0001; p = .031$). There was no significant correlation between physical activity and depression

10 or resilience. An exploratory analysis did not indicate that depression mediated the relationship

11 between physical activity and resilience. There is a need to address low levels of physical

12 activity in women living with HIV. Interventions that address resilience and depressive

13 symptoms may lead to improved mental health.

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19   Resilience, Physical Activity, and Depression in Women Living With HIV in the San Francisco

20   Bay Area: A Cross-Sectional Study

21   Among people living with HIV (PLWH), HIV infection and prolonged exposure to

22   antiretroviral therapy (ART) increase the risk for non-AIDS related comorbidities, such as

23   cardiovascular disease (Lambert et al., 2016), insulin resistance (Deeks et al., 2013), functional

24   limitations (Emlet et al., 2013), and frailty (Deeks et al., 2013). In addition, PLWH are affected

25   by HIV-related stigma, discrimination, and lack of social support—factors associated with

26   impaired immunological function, decreased quality of life, and stress-related symptomology,

27   including depression and anxiety (Emlet et al., 2013). For women living with HIV, additional

28   biological and social factors influence the impact of living with the disease. The cardiovascular

29   and bone health risks associated with menopause are greater in infected women compared to

30   their uninfected counterparts (Andany et al., 2016; Lambert et al., 2016). Structural determinants

31   of health, such as traditional gender roles, housing instability, poverty, and a history of abuse and

32   trauma, also create health disparities between women and men living with HIV, and between

33   women living with HIV and women unaffected by HIV (High et al., 2012; Machtinger et al.,

34   2012).

35   Resilience has been implicated as a significant predictor of quality of life in PLWH and is

36   associated with enhanced functional, physical, and psychological well-being (Fang et al., 2015;

37   Sauceda et al., 2016; Spies & Seedat, 2014; Yu et al., 2017; Yu et al., 2014; Zhang et al., 2015).

38   For example, among PLWH, resilience is positively associated with medication adherence

39   (Sauceda et al., 2016) and social support (Fang et al., 2015) and inversely correlated with viral

40   load (Dale et al., 2014), stigma (Zhang et al., 2015), substance use (Fumaz et al., 2015), and

41   mental health disorders, including depression and anxiety (Spies & Seedat, 2014; Yu et al.,

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42   2017).

43   The work presented here is guided by an integrated model comprising three theories that

44   address the process of resilience, the acquisition of protective factors, and the role of symptom

45   management in advancing resilient outcomes. The backbone of the framework is Richardson's

46   resiliency theory, whereby resilience is conceptualized as an ongoing process of disruption and

47   subsequent reintegration (Richardson, 2002). The process begins with a tension between

48   adversities and protective factors, the resilient qualities that buffer the effect of stressors.

49   Developing protective factors (i.e., resilient qualities) is a function of biology, prior experiences,

50   and interactions between individuals and their environment, including the ability to access

51   community resources.

52   The process of achieving resilient qualities is closely aligned with the principles of

53   Bronfenbrenner's bioecological model (Bronfenbrenner, 1999). In this model, person

54   characteristics, including those that are protective against adversity (i.e., resilience qualities), are

55   described as being influenced by multiple social, biological, and environmental factors. The

56   model explicates the means by which protective factors are acquired and offers a reasonable

57   interpretation for how an individual, even in adversity, may achieve resilience. Integrating the

58   resiliency and bioecological models increases understanding of the variance that exists in

59   response to stress and adversity and increases the relevance of resiliency theory across different

60   circumstances and among diverse groups of people.

61   According to resiliency theory, homeostasis is disrupted when protective factors are not

62   adequate to neutralize an adversity. The process of moving from a state of disequilibrium and

63   disruption to establish or regain resilience can be explained using the conceptual framework of

64   symptom management theory (SMT; Humphreys et al., 2014). The symptom management

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65   model's three interrelated constructs—symptom experience, management strategies, and

66   symptom status outcomes—are influenced and contextualized within the nursing science

67   domains of person, health-illness, and environment. In PLWH, a commonly reported symptom

68   experience is depression. Empirical evidence suggests PLWH experience depressive

69   symptomology at rates up to 10 times greater than their noninfected counterparts (Do et al.,

70   2014; Pence, 2009). In PLWH, depression is linked to suboptimal medication adherence

71   (Blashill et al., 2013), impaired immune function (Sin & DiMatteo, 2014), and mortality (Cook

72   et al., 2004).

73   As previously stated, physical activity has been implicated as an effective strategy for

74   improving psychological health, including depression (O'Brien et al., 2016). As a result, physical

75   activity has been characterized as a resilience resource that promotes adaptive coping and is an

76   effective approach for re-establishing psychological homeostasis in the event of disruption due to

77   uncontrolled stressors (Richardson et al., 1990). Research findings suggest effective symptom

78   management leads to a sense of mastery over one's illness and is correlated with resilience in

79   PLWH (De Santis et al., 2013). Physical activity may therefore be related to resilience as a

80   coping resource and disease management strategy that promotes positive health outcomes in the

81   context of living with HIV.

82   Integrating the resiliency and symptom management models provides a mechanism for

83   understanding resilient reintegration whereby a symptom common to PLWH, such as depression,

84   represents the symptom experience and an upset to psychological homeostasis. Disruption

85   follows, prompting the motivation to re-establish homeostasis by way of drawing on physical

86   activity, a resilient resource and symptom management strategy. The outcome of physical

87   activity is a measure of depressive symptomology and, in the context of resilience theory, leads

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88 to one of four possible reintegration outcomes, including resilience. As stated previously,

89 research on resilience and physical activity is scant in the HIV literature; therefore, little is

90 known about the potential effect of other related variables. Given the prevalence of depressive

91 symptomology in PLWH and the known relationship between physical activity and depression,

92 this study explores factors associated with resilience and whether depression mediates the

93 relationship between physical activity and resilience.

94 **Methods**

95 This is a secondary analysis of data collected from the Trauma Recovery Uncovered by

96 Sisterhood Today (TRUST) study (Cuca et al., 2019). TRUST is a mixed method, longitudinal

97 implementation study to assess the impact of trauma-informed health care for women living with

98 HIV in one HIV primary care clinic. Time 3 data, which are used in the present analysis, were

99 collected from February 2018 to June 2018.

100 Participants made up a convenience sample of women living with HIV ($n = 97$) who were

101 English speaking, identified as a cis- or transgender woman, were at least 18 years old, were able

102 to provide informed consent and successfully complete the study visit, and were patients of the

103 clinic at the time of data collection. All participants provided written informed consent, including

104 a separate consent allowing access to the patient's electronic health record (EHR). Study visits

105 were conducted in private clinic offices and entailed completion of a researcher-administered

106 survey booklet, which took approximately 30 to 45 minutes. After the interview, researchers

107 abstracted relevant data from the patient's EHR. Participants received a $45 gift card to thank

108 them for their time. The study was approved by the institutional review board at the University

109 of California, San Francisco (UCSF).

110 **Measures**

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111   *Demographic characteristics.* We administered a self-report instrument to assess social

112   and demographic factors, including age (continuous), gender (female/transgender female), race

113   (Black/African American, not Black/African American), education (high school or less/more

114   than high school), and stable housing (yes/no).

115   *HIV and medications.* Participants were asked the year of their HIV diagnosis

116   (continuous) and whether they were on HIV medications (yes/no). Participants self-reported

117   adherence to HIV medications based on a single-item adherence rating item, "Thinking back

118   over the past 30 days, rate your ability to take all your medications as prescribed" (very poor,

119   poor, fair, good, very good, excellent; Lu et al., 2008). Responses were then dichotomized into a

120   good 30-day adherence variable (yes = good, very good, or excellent; no = very poor, poor, or

121   fair).

122   *HIV biomarkers.* Viral load (copies/mL) and CD4 count (cells/mm^3) were abstracted

123   from each participant's EHR by research staff. Viral load was dichotomized as undetectable (<

124   40 copies/mL) or detectable. CD4 was dichotomized with < 200 cells/mm^3, which indicates an

125   AIDS diagnosis, or ≥ 200 cells/mm^3.

126   *CD-RISC 25*. The Connor-Davidson Resilience Scale© (CD-RISC) comprises 25 items

127   (e.g., "I am able to adapt when changes occur," "I can deal with whatever comes my way")

128   scored on a five-point scale ranging from (0) "not true at all" to (4) "true nearly all the time;"

129   score totals range from 0 to 100, and higher scores are associated with higher levels of resilience

130   (Connor & Davidson, 2003). The CD-RISC has been previously used with diverse cultural and

131   racial groups (Sauceda et al., 2016) and has shown internal consistency reliability in women

132   living with HIV (Cronbach's alpha = .94; Spies & Seedat, 2014). Cronbach's alpha in this study

133   was .93.

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134   *PHQ-9.* The Patient Health Questionnaire 9 (PHQ-9) comprises nine items that

135   correspond with nine symptoms of depression endorsed in the DSM-IV (Kroenke et al., 2001;

136   Löwe et al., 2004). The items are rated on a four-point scale ranging from 0 to 3; score totals

137   range from 0 to 27, with higher scores indicating greater depressive symptoms. A cutoff score of

138   ≥ 10 indicated at least moderate depression in concordance with prior literature (Levis et al.,

139   2019). Reliability has been evidenced by Cronbach's alpha coefficients from .84 to .86 (Kroenke

140   et al., 2001). Cronbach's alpha in this study was .87.

141   *Godin-Shephard Leisure-Time Exercise Questionnaire (GSLTEQ).* This is a four-item

142   self-report questionnaire (Godin & Shephard, 1997). For the first three items, the respondent is

143   asked to recall how many times in a typical week they engage in light, moderate, and strenuous

144   activities that last for more than 15 minutes at a time. The fourth item asks respondents to recall

145   how many times in a typical week they engage in physical activity "long enough to work up a

146   sweat." The scoring system was amended (Godin, 2011) and called Health Contribution Score

147   (HCS). First, the self-reported light, moderate, and strenuous activity weekly frequencies are

148   multiplied by 3, 5, and 9 metabolic equivalents of task, respectively. In alignment with American

149   physical activity guidelines, the HCS included the sum of the moderate and strenuous activity

150   scores to rank individuals by level of physical activity and to differentiate between active (i.e.,

151   scores ≥ 24) and insufficiently active (i.e., scores ≤ 23) categories of individuals (Amireault &

152   Godin, 2015).

153   **Analysis**

154   We calculated descriptive statistics to describe demographic and clinical characteristics

155   of the sample. We first conducted bivariate analyses to evaluate the relationships between

156   physical activity, depression, and resilience, and to determine whether a further analysis of

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157   depression as a mediator of the relationship between physical activity and resilience was

158   warranted. We hypothesized that resilience would be positively associated with physical activity

159   and negatively associated with depression; and that physical activity would be negatively

160   associated with depression. We then conducted a multivariable regression analysis to examine

161   independent effects of physical activity and depression on resilience, while adjusting for

162   potential demographic variables (age, education, and race) identified in past literature as being

163   related to resilience (Herbert et al., 2018; Rouhani et al., 2021; Terrill et al., 2016), and while

164   striving for sufficient power with the relatively small sample size. These analyses were

165   conducted using Stata SE 15.1.

166   We also conducted an exploratory mediation analysis to assess whether depression

167   mediates any relationship of physical activity on resilience, controlling for age, race, and

168   education. Analysis was conducted using the mediation package v4.5.0 (Tingley et al., 2014) in

169   R v4.0.0 (R Core Team, 2020), using 10,000 bootstrapped samples to estimate a 95% bootstrap

170   percentile confidence interval. Tingley et al. (2014) recommends greater than 1,000 bootstrap

171   replicates, so we ran 10,000. The mediation model for the dichotomous depression diagnosis was

172   a logistic regression model using the logit link, adjusting for dichotomized physical activity, age,

173   education, and race. The outcome model for resilience was a linear regression model adjusting

174   for depression as well as the same covariates in the mediation model. Of note, for a cross-

175   sectional mediation analysis to not be unpredictably biased, we assume the temporal precedence

176   of the variables in the causal chain to be correct (Fairchild & McDaniel, 2017; i.e., that physical

177   activity happens before depression, which happens before resilience). We note that other

178   timepoints in the study could not be used, as physical activity was only available in Time 3 data.

179   **Results**

180   We interviewed 97 women living with HIV, whose mean age was 54 years (*SD* 9.5;

181   Table 1). Almost half of the study participants were African American/Black (48.5%), almost

182   half had more than a high school education (47.4%), and most reported having stable housing

183   (89.7%). The mean time since HIV diagnosis was 20.5 years (*SD* 8.6). A majority of study

184   participants were currently taking HIV medications (91.3%) and of these, 88.8% reported good

185   30-day adherence. Participants' mean resilience score was 70.7 (*SD* 16.3), with a range of 30 to

186   100. Most participants were insufficiently active (67.0%). Almost half of participants scored ≥

187   10 on the PHQ-9, indicating at least moderate depression (45.4%; $M = 9.3$, *SD* 7.0).

188   **Bivariate Analysis**

189   Table 2 shows the results of the bivariate analyses between sociodemographics,

190   covariates, and resilience. Depression was significantly negatively correlated with resilience

191   (Coefficient = -12.5176, 95% CI, -18.6361 to -6.3991, p <.0001), and physical activity was

192   marginally positively correlated with resilience (Coefficient = 6.8659, 95% CI, -.0119 to

193   13.7437, p =.050). Further, there was no significant correlation between physical activity and

194   depression (Coefficient = -.28712, 95% CI, -1.1442 to .56996, p =.511).

195   **Multivariable Analysis of Resilience**

196   We next conducted a multivariable regression model to examine predictors of resilience

197   and included age, race, education, physical activity, and depression. In this model, education and

198   depression were significantly associated with resilience. Participants who had more than a high

199   school education had 6.7 higher resilience scores compared to those who had a high school

200   education or less (p = .031). Further, individuals who had at least moderate depression had

201   significantly lower resilience scores than those who did not have at least moderate depression

202   (unstandardized coefficient = -11.6593, CI, -17.8927 to -5.4260, p < .0001).

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Mediation Analysis

We further conducted a mediation analysis to see whether depression might mediate the relationship of physical activity on resilience, adjusting for age, race, and education. The average causal mediation effect (ACME) was estimated at 1.202 (CI, -1.112 to 5.12, $p = 0.22$), indicating that there was no statistically significant mediation. The average direct effect was estimated 6.078 (CI, -0.258 to 12.57, $p = 0.061$), the total effect as 7.280 (CI, 0.874 to 14.95, $p = 0.027$), and the proportion mediated as 0.165 (CI, -0.317 to 0.94, $p = 0.22$).

Discussion

Understanding resilience and how to further build resilience is an important area of study for women living with HIV given the toll of living, in many cases for decades, with a chronic illness. In this study, we found moderate levels of resilience ($M = 70.7$, SD 16.3) that were lower than those reported among women living with HIV in South Africa ($M = 81.7$, range, 24-100), and among the U.S. general population ($M = 80.4$, SD 12.8; Connor & Davidson, 2003; Spies & Seedat, 2014). The mean resilience score in our study population was more comparable to resilience scores among older women in the United States ($M = 75.7$, SD 13.0; Lamond et al., 2008), perhaps reflecting the somewhat higher mean age of our participants ($M = 54.0$ years, SD 9.5). In contrast, women living with HIV in China reported substantially lower mean resilience scores ($M = 47.3$, SD 15.1; Yang et al., 2020). Originally designed as a clinical tool for evaluating treatment response in patients with psychiatric disorders, the CD-RISC has also been used to evaluate the effectiveness of interventions designed to improve resilience among PLWH (Yu et al., 2014). Yu et al. found an increase in resilience at the end of their study and at 3 months' post-intervention. In the current study, no interventions were implemented; thus, the use

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225 of the measure in this cross-sectional analysis may not exploit the full evaluative potential of the

226 measure.

227   Among our study participants, almost half had symptoms of at least moderate depression,

228 and depression was inversely associated with resilience, findings that are consistent with past

229 studies of women living with HIV (Spies & Seedat, 2014; Yang et al., 2020). High resilience

230 among PLWH has been associated with lower prevalence of depression and anxiety and

231 problems with activities of daily living (Yang et al., 2020). Among those with low depression

232 symptoms or low internalized HIV stigma, resilience was associated with better ART adherence

233 and viral suppression (Fletcher et al., 2020). These results suggest that building resilience and

234 treating depression may be critical to better health outcomes for women living with HIV.

235   Our study adds to the literature regarding physical activity and resilience in PLWH.

236 Although earlier research suggests that exercise is associated with depression and depression is

237 associated with resilience (O'Brien et al., 2016), our results did not support our hypothesis that

238 depression mediated the pathway between physical activity and resilience. The GSLTEQ was

239 validated among people with cancer and multiple sclerosis but not with PLWH. Future studies

240 should validate this scale for PLWH, as some questions may not be suitable. For example,

241 specific activities are listed for each category in the questionnaire, including running, vigorous

242 swimming, bicycling, fast walking, and fishing. The examples for these activities may not be

243 appropriate for PLWH. Additionally, one study found that physical activity among PLWH

244 remains lower than the recommended level of activity (Webel et al., 2019), which indicates that

245 the HCS in our study, which only uses moderate and strenuous scores, may not be sensitive to

246 the physical activity of PLWH. In this population, different measures of physical activity may be

247   more sensitive and show significant relationships between physical activity and resilience and

248   depression.

249   We explored the relationships between physical activity, depression, and resilience by

250   looking at predictors of resilience. Our study endorses past research that supports an inverse

251   correlation between depression and resilience (Spies & Seedat, 2014; Yu et al., 2017). Due to the

252   nature of cross-sectional studies, however, it is not possible to ascertain whether having few

253   symptoms of depression leads to high resilience or whether high resilience predicts low

254   depression. For example, depression may be a consequence of added stressors and the experience

255   of stigma due to their HIV status, race and/or socioeconomic status (Rueda et al., 2016). These

256   experiences and stressors may precede and impact resilience in PLWH. However, a person who

257   cultivates and builds their resilience may consequently experience fewer symptoms of

258   depression.

259   We further found that level of education explained a portion of the variance in resilience

260   in our study, which is also reflected in prior research. Among a community sample, resilience

261   was positively correlated with level of education and also explained a small portion of the

262   variance of resilience when controlling for gender and income (Campbell-Sills et al., 2009).

263   However, the low proportion of the variance indicates that other factors contribute to resilience.

264   In a study among sex workers in the United States, structural factors, such as high school degree

265   or higher, were indeed associated with resilience (Rouhani et al., 2021). The attainment of a high

266   school degree or higher in our study may reflect educational achievement, bolstering resilience.

267   This study had limitations. First, the use of self-report instruments introduced the

268   potential for bias, such as social desirability bias, recall bias, and response bias. Bias may have

269   been introduced due to self-selection into the study or exclusion criteria (e.g., requiring English

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270   language); it may be that those who agreed to participate had a higher level of resilience than

271   those who declined. In addition, the study sample size was small, which may have limited our

272   ability to detect statistical differences. Future research in this area should use larger samples in

273   order to be able to detect statistical differences and to be able to examine a larger number of

274   variables that may be related to resilience. The cross-sectional design precluded evaluation of

275   causality and the ability to examine associations among variables across time (physical activity

276   was only available at Time 3 data). When conducting our exploratory mediation analysis, we had

277   to assume that a temporal precedence of variables was correct, which may not be the case and, if

278   incorrect, may unpredictably bias those results (Fairchild & McDaniel, 2017). Relevant

279   covariates may not have been measured because of the need to reduce participant burden during

280   data collection. Further, because this is a clinical sample of women engaged in care, resilience

281   scores may be higher than for those not engaged in care, reducing the generalizability of study

282   findings. Finally, convenience sampling at one location also limits external validity. These

283   results are therefore primarily applicable to a clinical sample of women who are in treatment for

284   HIV and may not generalize to other populations of PLWH.

285   **Conclusion**

286   Understanding resilience has important implications for PLWH. The traditional

287   epidemiological model of risks and deficits may unintentionally characterize PLWH as patients

288   who are ill equipped to manage the challenges of their HIV status on their own (Herrick et al.,

289   2014). On the other hand, a focus on strengths emphasizes the capacity for adaptation and

290   positive outcomes. Framing resilience as a process that persists in the course of an individual's

291   lifetime suggests that the potential to adapt to adversity is always possible. Identifying factors

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292   that promote effective coping and adaptation will broaden our knowledge with regard to

293   improving health outcomes for PLWH.

294   Resilience research, including identifying interventions that enhance resilient outcomes in

295   PLWH, was identified as a priority in a report to the National Institutes of Health Office of AIDS

296   Research (High et al., 2012). Investigating physical activity as a resilience resource is in

297   alignment with this goal and has the potential to provide evidence for the effectiveness of

298   physical activity as a self-management tool for PLWH. In addition, because physical activity has

299   been understudied in PLWH populations, this study addresses the gap in the literature as well.

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525 **Key Considerations**

526   • Women who reported higher levels of resilience reported fewer symptoms of depression.

527   • Women living with HIV who are long-term HIV survivors are resilient, but ongoing

528   assessment of depression is indicated.

529   • Physical activity in women living with HIV could be improved, but methods to ensure

530   sufficient activity need further exploration.

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532 Table 1. Sample characteristics of women living with HIV from an HIV primary care clinic in

533 San Francisco (*n* = 97)

Characteristics	Mean (*SD*), range	Number (%)
Age	54.0 (± 9.5), 28-75	
Gender		
Female		93 (95.9%)
Transgender		4 (4.1%)
Race		
Other		50 (51.6%)
African American/Black		47 (48.5%)
Education		
High school or less		51 (52.6%)
More than high school		46 (47.4%)
Stable housing		
No		10 (10.3%)
Yes		87 (89.7%)
Years since HIV diagnosis	20.5 (± 8.6), 2-38	
On HIV medications		
No		8 (8.3%)
Yes		89 (91.8%)
Good 30-day adherence (*n* = 89)		
No		10 (11.2%)
Yes		79 (88.8%)
Undetectable viral load (*n* = 94)		
No		15 (16.0%)
Yes		79 (84.0%)
CD4 count (*n* = 92)		
< 200 cells/mm^3		6 (6.5%)
≥ 200 cells/mm^3		86 (93.5%)

Physical activity (Health Contribution Score; *n* = 97)		
Insufficiently active (≤ 23)		65 (67.0%)
Active (≥ 24)		32 (33.0%)
Resilience (scale 0-100)	70.7 (± 16.3), 30-100	
Depression (scale 0-27)	9.3 (± 7.0), 0-25	
None or mild depression (< 10)		53 (54.6%)
Major depression (≥ 10)		44 (45.4%)

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536   Table 2. Bivariate associations with resilience among women living with HIV from an HIV

537   primary care clinic in San Francisco (*n* = 97)

538

	Bivariate	
Variables	*β*	*p*
Age	.2440	*p* =.163
Gender		
Female	ref	-
Transgender female	3.5565	*p* = .395
Race		
Other	ref	-
African American/Black	3.7570	*p* = .258
Education		
High school or less	ref	-
More than high school	6.3137	*p* = .056
Stable housing		
No	ref	-
Yes	1.3161	*p* = .810
Years since HIV diagnosis	.0120	*p* = .951
On HIV medications		
No	ref	-
Yes	-3.6180	*p* = .550
Good 30-day adherence (*n* = 89)		
No	ref	-
Yes	4.8241	*p* = .388
Undetectable viral load (*n* = 94)		
No	ref	-
Yes	-3.2253	*p* = .472
CD4 count (*n* = 92)		
< 200 cells/mm^3	ref	-
≥ 200 cells/mm^3	7.0310	*p* =.296

Physical activity (Health Contribution Score)		
Insufficiently active (≤ 23)	ref	-
Active (≥ 24)	6.8659	$p = .050$
Depression (scale 0-27)		
None or mild depression (< 10)	ref	-
Major depression (≥ 10)	-12.5176	$p < .0001$

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542 Table 3. Multivariable associations with resilience among women living with HIV from an HIV

543 primary care clinic in San Francisco (*n* = 97)

544

	Multivariable	
Variables	*ß*	*p*
Age	.1994	*p* = .230
Race	1.9849	*p* = .536
Education	6.7094	*p* = .031
Physical activity (Health Contribution Score)	6.0779	*p* = .072
Depression (scale 0-27)	-11.6593	*p* < .0001

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