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A multinational study of self-compassion and human immunodeficiency virus-related anxiety.

Permalink

<https://escholarship.org/uc/item/49w2b6ts>

Journal

International nursing review, 60(4)

ISSN

0020-8132

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Publication Date

2013-12-01

DOI

10.1111/inr.12056

Peer reviewed

A multinational study of self-compassion and human immunodeficiency virus-related anxiety

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Aim: This study represents an initial effort at examining the association between the construct of self-compassion and human immunodeficiency virus (HIV)-related anxiety in a multinational population with HIV disease.

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Portions of this paper were presented at the 2012 XIX International AIDS conference, 22–27 July, Washington, DC, USA.
Conflict of interest: We have no conflicts of interest to declare.



Background: Previous studies have found that self-compassion is a powerful predictor of mental health, demonstrating positive and consistent linkages with various measures of affect, psychopathology and well-being, including anxiety.

Methods: Cross-sectional data from a multinational study conducted by the members of the International Nursing Network for HIV Research ($n = 1986$) were used. The diverse sample included participants from Canada, China, Namibia, the United States of America and the territory of Puerto Rico. Study measures included the anxiety subscale of the Symptom Checklist-90 instrument, the Brief Version Self-Compassion Inventory and a single item on anxiety from the Revised Sign and Symptom Checklist.

Findings: Study findings show that anxiety was significantly and inversely related to self-compassion across participants in all countries. We examined gender differences in self-compassion and anxiety, controlling for country. Levels of anxiety remained significantly and inversely related to self-compassion for both males ($P = 0.000$) and females ($P = 0.000$). Levels of self-compassion and anxiety varied across countries.

Conclusions: Self-compassion is a robust construct with cross-cultural relevance. A culturally based brief treatment approach aimed at increasing self-compassion may lend itself to the development of a cost effective adjunct treatment in HIV disease, including the management of anxiety symptoms.

Keywords: Disease Process, HIV/AIDS, Indigenous Health, International Health, International Issues, Mental Health

Introduction

Despite the availability of effective cognitive and pharmaceutical treatments, anxiety remains one of the most commonly diagnosed mental health conditions affecting persons living with human immunodeficiency virus (HIV) disease (Bing et al. 2001; Whetten et al. 2008). Many aspects of HIV disease create potential for generating anxiety including financial difficulties, limited access to care, encountering HIV stigma, disclosure concerns, symptoms associated with HIV disease progression and an uncertain disease course (Lee et al. 2002). Anxiety symptoms also impact health outcomes in HIV disease. They are strong predictors of non-adherence with HIV medications and, as a result, anxiety symptoms may hasten HIV disease progression (Campos et al. 2010). They can also contribute to a diminished quality of life as well as higher costs of health care (Ford et al. 2004). Along with a growing body of research directed towards the testing of psychosocial clinical interventions for HIV-related anxiety, there has been a continuing interest in developing self-management strategies for coping with anxiety symptoms.

Self-management strategies have begun to receive attention in relation to chronic illness, including HIV/acquired immunodeficiency syndrome (AIDS). Recent research suggests that treatments facilitating increased self-compassion, a self-attitude construct derived from Buddhist psychology, may hold promise in the search for effective interventions aimed at reducing anxiety symptoms in HIV disease. Neff (2003a) described the construct of self-compassion as being kind rather than harshly critical towards one's experiences as part of the larger human

experience. To date, very little information is available regarding the degree to which treating one's self-kindly could impact HIV-related anxiety symptoms. The present paper has three aims: (1) to determine levels of anxiety in a multinational sample of persons living with HIV/AIDS, (2) to determine levels of self-compassion and to (3) examine the relationship between self-compassion and anxiety in HIV disease.

Studies on anxiety and HIV

A growing body of research presents evidence of the high prevalence of anxiety disorders among persons living with HIV disease (Bing et al. 2001; Kemppainen et al. 2006; Whetten et al. 2008). Prevalence rates of anxiety disorders have been estimated to be as high as 38%, compared to 11% in the general population (Pence et al. 2007). In addition to increased rates of generalized anxiety disorder and panic disorder, studies also reflect high rates of post-traumatic stress disorder (PTSD; O'Cleirigh et al. 2009; Reisner et al. 2009). Multiple investigators suggest that anxiety disorders may be highest among groups with the highest HIV prevalence rates including high-risk women of colour and men who have sex with men (O'Cleirigh et al. 2009). Studies also highlight the co-occurrence of HIV-related anxiety with other mental health disorders, including substance use and mood disorders (Gaynes et al. 2008).

More recent research demonstrates a linkage between anxiety and adverse physiological changes in HIV. Increased levels of psychological distress, including anxiety, may result in the dysregulation of stress regulation hormones, a diminished

regulation of the immune system, an impaired response to HIV medications (Greeson et al. 2008; Lampe et al. 2010) and increased severity of fatigue (Barroso et al. 2010).

The construct of self-compassion

Neff defined and conceptualized self-compassion as 'being touched by and open to one's own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one's suffering and to heal oneself with kindness' (Neff 2003a, p. 87). Neff further added, 'self-compassion involves offering nonjudgmental understanding to one's pain, inadequacies and failures so that one's experiences are seen as part of the larger human experience' (Neff 2003b, p. 224). Three foundational constructs that characterize self-compassion include kindness, mindfulness and a sense of common humanity. High levels of self-compassion help persons to view problems, weaknesses and shortcomings accurately while reacting with kindness and compassion rather than harshness and self-criticism (Leary et al. 2007; Neff 2003a). As a result, a self-compassionate attitude may serve as a buffer, protecting persons against stressful or anxiety-provoking events.

Researchers have found that self-compassion is consistently correlated with positive psychological outcomes, and that self-compassion is a powerful predictor of mental health (Barnard & Curry 2011). Studies also demonstrate positive and consistent linkages with various measures of affect, well-being and psychopathology, including anxiety (Leary 2007; Neff 2003a). The majority of research has used Neff's Self-Compassion Inventory (SCI), a 26-item measure with well-established reliability and validity (Neff 2003b).

Self-compassion has primarily been studied in samples of undergraduate students. In a study of 177 college students, Neff and colleagues found that higher levels of self-compassion provided a buffer against acute stressors and were also associated with greater psychological well-being (Neff et al. 2007). Significant positive associations with self-reported measures of happiness, optimism, positive affect, wisdom, personal initiative, curiosity, agreeableness and conscientiousness were also found. In this study, negative affect and neuroticism were negatively associated with self-compassion.

Leary and colleagues found that self-compassion moderated reactions to distressing situations and negative events such as rejection, failure or embarrassment (Leary et al. 2007). The authors suggested that self-compassion might act as a psychological buffer by helping persons who are faced with stressful or negative life events to evaluate themselves and the event more accurately.

Raque-Bogdan and colleagues examined relationships among attachment, self-compassion, mattering (a belief that others are

aware of, rely on and care about one's presence) and functional health among a sample of 208 college students (Raque-Bogdan et al. 2011). In this study, both self-compassion and mattering partially mediated relationships between levels of anxiety and mental health. High levels of self-compassion were negatively correlated with anxiety, depression, rumination, thought suppression and self-criticism. The researchers suggested that exploring positive mediators of mental health, such as self-compassion, may be helpful to clinicians who are working with clients in time-limited counselling sessions (Raque-Bogdan et al. 2011).

Research on self-compassion and anxiety

Studies that examine associations between the constructs of anxiety and self-compassion are based on samples of undergraduate students with subclinical levels of anxiety and depression. These studies consistently reflect a negative correlation between anxiety and self-compassion (Neff et al. 2005). Neff and colleagues used a gestalt two-chair technique in an effort to raise participants' self-compassion and found that increases in self-compassion were associated with decreased levels of anxiety (Neff et al. 2007).

Only two studies were found that assessed the linkage between self-compassion and anxiety in community-based samples of persons seeking self-help for anxiety distress. Van Dam and colleagues examined the ability of the Self-Compassion Scale (SCS) developed by Neff and the Mindfulness Attention Awareness Scale developed by Brown and Ryan to predict anxiety, depression, worry and quality of life in an international sample of 504 persons experiencing high levels of anxiety and depressive symptoms (Van Dam et al. 2011). The majorities of participants in this study sought assistance through mental health services or were taking psychiatric medications. Subjects were recruited through a variety of mental health and self-help websites. Findings revealed that self-compassion was a more robust predictor of mental health symptom severity than mindfulness. The researchers suggest that self-compassion may be an important component of mindfulness-based interventions for treating anxiety.

A study by Pauley and McPherson highlighted the difficult challenges that persons with anxiety disorders face in developing a self-compassionate stance (Pauley & McPherson 2010). Through the use of a qualitative interpretative phenomenological analysis, the researchers examined the meaning and experiences of self-compassion in a sample of 10 participants with a Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) diagnosis of depressive or anxiety disorder. Although participants felt that self-compassion would prove useful in dealing with their depression or anxiety disorders, they also

indicated that their mental health disorder would create difficult challenges in their ability to be self-compassionate.

To date, studies of self-compassion have been primarily conducted with samples of undergraduate university students with relatively mild stressful situations as well as in the general population with self-reported anxiety symptoms. We found no published studies that examine the linkages between self-compassion and anxiety in persons with chronic illness, including HIV disease. The present study examined associations between self-compassion and anxiety in a multinational sample of persons living with HIV disease.

Methods

Design, setting, sample

This sub-study is a secondary data analysis of a multisite study conducted by the members of the International Nursing Network for HIV/AIDS Research (Holzemer 2007). The purpose of the original study was to determine the relationships among self-compassion and self-efficacy and treatment outcomes (medication adherence, symptom management and risk behaviours) in persons living with HIV/AIDS. The study included participants from Canada, China, Namibia, Thailand, the United States of America (USA) and its territory of Puerto Rico. Data collection sites within the USA included California (San Francisco), Massachusetts (Boston), Washington (Seattle), Illinois (Chicago), New York (New York City), Ohio (Cleveland), North Carolina (Durham, Wilmington), Texas (Corpus Christi, Harlingen), New Jersey (Newark) and Hawaii (Honolulu). At four of the participating sites, the instruments were translated from English to the local language(s). These sites were Shanghai, China (Chinese), Bangkok, Thailand (Thai), San Juan, Puerto Rico (Spanish) and Windhoek, Namibia (Afrikaans and Oshiwambo). Each site followed established translation procedures (Beaton et al. 2000) in order to ensure reliability of translated instruments. This process included initial translation (forward) by an expert whose primary language was Thai, Spanish, Afrikaans, Oshiwambo or Chinese. Next, back-translation was conducted, followed by review and adjudication, pilot testing and finally a consensus meeting was held to approve the translated version of the measure.

In the original study, data were collected from a convenience sample of 2186 persons living with HIV/AIDS receiving care or services through community-based organizations, university-based AIDS clinics, private practices, home care services, residential and day care facilities, public and private hospitals. To be enrolled in the study, participants had to meet the following criteria: (1) self-reported HIV-positive serostatus, (2) 18 years or older and (3) ability to provide informed consent. Convenience

samples of participants completed packets of research instruments at each study site, including measures of anxiety and self-compassion. Because participants in Thailand did not complete a measure of anxiety, this site was not included in the present analysis.

Ethical considerations

The Institutional Review Board at the University of California, San Francisco approved the study along with institutional boards or ethics review panels at each study site, and all subjects gave informed consent.

Instruments

The following instruments were included in this analysis:

Demographic data

This questionnaire included items related to age, gender, ethnicity, education, insurance, having children, work status, whether or not the person had an AIDS diagnosis and other medical conditions. Physiologic variables included a self-reported CD4 count and the length of time with HIV.

Symptom Checklist-90 (SCL-90)

This 90-item self-report symptom inventory measures a broad range of psychological problems and symptoms through nine primary symptom dimensions including somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism (Derogatis et al. 1973). The SCL-90 is designed for use with individuals from the community as well as persons with medical or psychiatric conditions. The SCL-90 is scored on a five-point scale assessing 'how much' the respondent was bothered by each symptom in the past week (0 = not at all; 4 = extremely). The instrument has well-established reliability and validity and has been tested across numerous populations 13 years old and older (Derogatis & Unger 2010). In this study, anxiety symptoms were assessed with the 10-item anxiety subscale from the SCL-90. The items in this subscale are summed to obtain a total score that can range from 0 to 40. Internal consistency in this sample was high (Cronbach's $\alpha = 0.95$).

Brief Version Self-Compassion Inventory (BVSCI)

This 12-item scale was derived from Neff's 26-item SCS (Neff 2003b; Neff et al. 2005). The BVSCI possesses psychometric characteristics comparable to Neff's original scale. In pilot testing, scores on the 12-item scale correlated 0.92 with Neff's original 26-item full-length scale. This shortened, yet structurally equivalent scale was used to reduce participant burden and

include the perspectives of participants who were ill or debilitated across varied clinical settings (Kemppainen et al. 2013). The BVSCI was validated with three non-clinical samples of adults in the USA over the age of 18 years and also with an international sample of 1967 adults with HIV disease and increased levels of anxiety and depression (Kemppainen et al. 2013). Internal consistency for the scale in the current sample was sufficiently acceptable (Cronbach's $\alpha = 0.71$). In this analysis, the BVSCI was negatively associated with the anxiety subscale of the SCL-90 (-0.410). Subjects were asked to rate how they deal with difficult situations on a five-point Likert scale, where 1 = almost never, 2 = rarely, 3 = sometimes, 4 = frequently and 5 = almost always. Sample items include 'When I'm feeling down I tend to obsess and fixate on everything that's wrong', 'When I see aspects of myself that I don't like, I get down on myself' and 'When I'm going through a very hard time, I give myself the caring and tenderness I need'. Scores are computed by calculating the mean of the scale item responses.

The Revised Sign and Symptom Checklist (SSC-HIVrev)

The 72-item SSC-HIVrev seeks to identify the symptoms and intensity being experienced by people living with HIV on the day of data collection (Holzemer et al. 1999). The SSC-HIVrev has three parts: part I consists of 45 HIV-related physical and psychological symptoms (including anxiety), clustered into 11 factor scores, along with a total score, with reliability estimates ranging from 0.76 to 0.91; part II consists of 19 HIV-related symptoms that do not cluster into factor scores but may be of interest from a clinical perspective; and part III consists of eight items related to gynaecological symptoms for women. The gynaecological symptoms were submitted to a principal components factor analysis with varimax rotation, producing a one-factor solution that explained 71.8% of the variance, with a reliability estimate of 0.94 (Holzemer et al. 1999). The total score Cronbach's alpha in a study of over 1000 subjects in five countries was 0.97 (Holzemer et al. 2000). In this study, levels of anxiety intensity were assessed with a single item from the SSC-HIVrev. For this analyses, we used the question that asked if the participants were experiencing anxiety (yes/no), and if yes, to rate the level of anxiety intensity on a three-point Likert scale with 1 = mild, 2 = moderate and 3 = severe. The SCL-90 anxiety subscale was significantly positively associated with the single item on anxiety in the SSC-HIVrev (0.642).

Findings

Demographic characteristics of the sample

The sample in this analysis consisted of 1986 persons living with HIV, including 1357 males (67.5%), 559 females (28.0%) and 70

transgender or persons who declined to state their gender (3.5%) with a mean age of 45 years ($SD = 9.4$). The diverse sample in this study was predominantly male except in Namibia and Puerto Rico, which had a slightly higher number of females than males. The ethnically diverse sample included participants from Canada ($n = 95$, 5.0%), China ($n = 107$, 5.4%), Namibia ($n = 102$, 5.0%), the US territory of Puerto Rico ($n = 100$, 5.0%) and the USA ($n = 1558$, 79.4%). Health status indicators for the total sample included an average of 12 years ($SD = 7.5$) since HIV diagnosis, with the longest length in Puerto Rico at 14 years ($SD = 7.5$) and the shortest length in China at 4 years ($SD = 3.0$). Forty-two per cent of the study participants had received an AIDS diagnosis. The self-reported CD4 count for the sample was $495.98/\text{mm}^3$ ($SD 446.09$), with an average length of time since acquiring an HIV diagnosis at 12.0 years ($SD 4.3$). Sixty-six per cent of the sample had an education level of high school or less and 50% had at least one child living at home. Sixty-nine per cent reported that they did not work for pay (see Table 1).

While 66% ($n = 1227$) reported that they were being treated for a coexisting medical condition, 42 subjects self-reported a diagnosis of anxiety disorder, 16 indicated that they had PTSD, and an additional 6 experienced panic attacks. The SSC-HIVrev item measuring anxiety intensity for the total sample indicated that 53% were experiencing mild (25%), moderate (17%) or severe (11%) anxiety intensity at the time of the study. Highest anxiety intensity scores were reported by participants in Canada with 36.2% indicating mild intensity, 25.5% at moderate intensity and 9.6% at severe intensity. Participants in Namibia reported the lowest anxiety intensity scores with only one subject reporting mild intensity, and an additional two subjects reporting moderate intensity. There were no reports of severe anxiety intensity among the Namibia participants (see Table 2).

Country mean comparisons of anxiety and self-compassion

When we examined mean scores on the anxiety instrument of the SCL-90, the study site in Canada had the highest mean scores at 19.2 ($SD 9.2$), followed by Puerto Rico at 18.6 ($SD 10.2$), USA at 18.6 ($SD 9.3$), China at 16.8 ($SD 7.5$) and Namibia at 16.1 ($SD 7.0$; see Table 2).

We then examined self-compassion levels in each of the five countries. Puerto Rico had the highest mean scores on the self-compassion survey at 39.7 ($SD 6.6$). Both China and the USA had similar mean scores (China, 38.7, $SD 6.1$; USA, 38.7, $SD 7.8$) followed by Namibia at 38.3 ($SD 5.2$) and Canada at 37.3 ($SD 7.8$).

Relationship between self-compassion and anxiety

Linear regression analysis for the total sample showed that anxiety was significantly and inversely related to

Table 1 Demographic characteristics of study participants in Canada, China, Namibia, Puerto Rico, USA (n = 1986)

Characteristics	Total (n = 1982)		Canada (n = 95)		China (n = 107)		Namibia (n = 102)		Puerto Rico (n = 100)		USA (n = 1558)	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Gender												
Male	1357	69.4	75	80.6	90	84.1	47	46.1	44	44.0	1101	70.8
Female	559	28.6	14	15.1	17	15.9	53	52.0	54	54.0	421	27.1
Ethnicity												
Decline to state/other	40	2.0	4	4.4	-	-	2	2.0	2	2.0	34	2.2
Asian/Pacific Islander	230	11.8	4	4.0	107	100	97	95.1	-	-	22	1.4
African American/black	757	38.7	2	2.0	-	-	5	4.9	1	1.0	749	48.4
Hispanic/Latino	415	21.2	2	2.0	-	-	-	-	96	96.0	317	20.5
Native American Indian	64	3.3	34	34.0	-	-	-	-	-	-	30	1.9
White/Anglo (non-Hispanic)	441	22.5	51	51.0	-	-	-	-	-	-	389	25.1
Other	49	2.5	7	7.0	-	-	-	-	-	-	40	2.6
Education												
Grade school	551	28.0	47	47.5	24	22.4	46	45.1	37	37.0	397	25.5
High school or GED	753	38.3	21	21.2	40	37.4	11	10.8	36	36.0	645	41.4
AA degree/technical/vocational school	414	21.1	20	20.2	8	7.5	30	29.4	18	18.0	338	21.7
College (BS or BA)	195	9.9	10	10.1	32	29.9	11	10.8	7	7.0	135	8.7
Masters degree	43	2.2	1	1.0	3	2.8	4	3.9	2	2.0	34	2.2
Doctoral/medical degree/law degree	9	0.5	-	-	-	-	-	-	-	-	8	0.5
Insurance												
No	603	30.6	39	41.1	80	74.8	96	95.0	5	5.0	383	24.5
Yes	1365	69.4	56	58.9	27	25.2	5	4.9	95	95.0	1182	75.5
Children												
No	963	49.5	57	64.8	55	51.4	10	9.8	29	29.0	812	52.4
Yes	984	50.5	31	35.2	52	48.6	92	90.2	71	71.0	738	47.6
Work for pay												
Do not work for pay	1526	77.0	70	76.9	47	43.9	70	68.6	91	91.0	1248	79.9
Do work for pay	436	22.0	21	23.1	60	56.1	32	31.4	9	9.0	314	20.1
AIDS diagnosis												
No	1097	56.5	54	59.3	92	86.0	21	21.9	63	64.3	867	56.0
Yes	823	42.4	36	39.6	15	14.0	75	78.1	33	33.7	664	42.9
Do not know	20	1.0	1	1.1	-	-	-	-	2	2.0	17	1.1
Other medical conditions												
No	619	33.5	36	37.9	-	-	16	16.0	23	23.2	544	35.1
Yes	1227	66.5	59	62.1	107	100	84	84.0	76	76.8	1008	64.9
Age												
	M (SD)		M (SD)		M (SD)		M (SD)		M (SD)		M (SD)	
	45.1 (9.4)		47.1 (8.2)		37.5 (9.7)		39.3 (9.1)		45.0 (8.7)		45.9 (9.2)	
CD4												
	495.98 (446.09)		398.94 (264.48)		232.53 (180.9)		370.30 (219.16)		618.90 (425.85)		533.44 (477.77)	
Length of HIV												
	12.0 (7.5)		14.9 (6.5)		4.2 (3.0)		7.05 (4.28)		14.13 (7.56)		13.81 (7.40)	

AA, associate degree; GED, General Educational Development test.

Table 2 Country comparison of study variables

Variable	Total Sample (n = 1982) M (SD)	Canada (n = 95) M (SD)	China (n = 107) M (SD)	Namibia (n = 102) M (SD)	Puerto Rico (n = 100) M (SD)	USA (n = 1558) M (SD)
Anxiety Instrument of the Symptom Checklist 90-R-Instrument	17.7 (9.1)	19.2 (9.2)	16.8 (7.5)	16.1 (7.0)	18.6 (10.2)	17.8 (9.3)
Self Compassion Scale	38.7 (7.6)	37.3 (7.8)	38.7 (6.1)	38.3 (5.2)	39.7 (6.6)	38.7 (7.8)
Anxiety Symptom Intensity (SSC-HIVrev)						
Do not have the problem	46.9%	28.7%	37.7%	97.1%	33.0%	46.0%
Mild	25.0%	36.2%	43.4%	1.0%	29.0%	24.4%
Moderate	17.3%	25.5%	14.2%	2.0%	18.0%	18.0%
Severe	10.8%	9.6%	4.7%	–	20.0%	11.4%

SSC-HIVrev, the revised sign and symptom checklist for human immunodeficiency virus; SD, standard deviation.

Table 3 Linear regression of self-compassion on anxiety by country

Variable	Standardized β	t	Significance
Total sample			
Canada	–0.373	–2.603	0.013*
China	–0.348	–3.057	0.001***
Namibia	–0.358	–3.912	0.000***
Puerto Rico	–0.400	–6.117	0.000***
USA	–0.435	–6.001	0.000***

* $P < 0.05$; *** $P < 0.001$.

self-compassion ($\beta = -0.410$, $P = 0.000$). Levels of anxiety for each country were significantly and inversely related to self-compassion (see Table 3). We also examined gender differences in self-compassion and anxiety, controlling for country. Levels of anxiety remained significantly and inversely related to self-compassion for both males ($P = 0.000$) and females ($P = 0.000$).

Discussion

This exploratory study identified significant associations between self-compassion and anxiety in a multinational sample of persons living with HIV/AIDS. Consistent with previous research, linear regression revealed that higher levels of self-compassion were negatively associated with anxiety for the total sample. In this study, the significant, negative association between self-compassion and anxiety remained consistent across participants in Canada, China, Namibia, Puerto Rico and the USA as well as across gender. To our knowledge, this study represents an initial effort at examining the association between these two constructs in a population with HIV disease.

In this study, levels of self-compassion and anxiety varied across cultures. Our finding that anxiety rates were highest among our Canadian participants warrants further study. The characteristics of our Canadian subsample included a large number of Aboriginal Canadians. Perhaps the high rates of anxiety among this subgroup are influenced by the political, social and structural challenges faced by many Aboriginal Canadians. The social and structural challenges confronting many Aboriginal Canadians are the result of a long history of cultural oppression and marginalization that were institutionalized in governmental policies such as the residential school system, out-adoption (forced foster care/adoption) and centralized bureaucratic control (Kirmayer et al. 2003). Higher rates of HIV, depression, PTSD, suicide and substance abuse have been reported among Aboriginal Canadians in comparison to the Canadian population (Kirmayer et al. 2003; Smye et al. 2011). Our findings contribute to knowledge about the effects of anxiety on the health outcomes of Aboriginal Canadians living with HIV because there has been limited research that studies the levels of anxiety experienced by this subgroup of people. Our findings are consistent with increased rates of anxiety and depression observed in other Aboriginal persons with similar post-colonial experiences (Petchkovsky & San Roque 2002). Our findings are also consistent with reports of Canadian Aboriginal youth who report experiencing feelings of anxiety related to HIV testing (Worthington et al. 2010). The findings of this study highlight the need for developing anxiety reduction interventions that are culturally appropriate for Aboriginal Canadians living with HIV. Further research is needed to describe the effects of anxiety among this subgroup of Canadian persons living with HIV and develop strategies to engage them in the development of anxiety reduction interventions tailored to their

specific contextual needs. An essential challenge is to conduct research that explores the different experiences of Inuit and Métis peoples in addition to First Nations.

Highest levels of self-compassion were found in the participants from Puerto Rico. Compassion for others is one of the most significant traits in the Puerto Rican character. Puerto Ricans are characterized as people, who, in time of stress, turn to family members in crisis for safety, protection and caretaking (Roldan 2007). The high level of perceived family support and having someone to live for is the most essential dimension of Hispanic familism (Murphy et al. 2003). The word 'respeto' is also one of the most valued traits in the Puerto Rican culture. Puerto Ricans learn to respect others by learning to respect oneself. In this study, participants in Puerto Rico also had the longest length of HIV disease, suggesting that dealing with this chronic disease over time might contribute to a sense of empowerment and self-compassion in daily functioning.

Little work has been published that examines the relationship between self-compassion and anxiety across cultures. The only study that was found comparing levels of self-compassion across ethnicities or countries included a sample of undergraduate students living in the USA, Thailand and Taiwan (Neff et al. 2008). This cross-cultural comparison found that levels of self-compassion were highest in Thailand and lowest in Taiwan, with the USA falling in between. The authors suggested that the variance in levels of self-compassion was linked to specific cultural features or patterns. Levels of self-compassion also varied among the culturally diverse sample included in the present study.

Although a significant linkage was found between self-compassion and anxiety in this study, future research is needed to determine if a compassion-based, culturally relevant intervention may have the potential for generating a positive change in the ability to self-manage HIV-related anxiety symptoms. Some initial work has demonstrated the benefits of a self-compassion intervention with persons who are struggling with an addiction (Marlatt 2002), eating disorders (Wiser & Telch 1999) and also for assisting healthcare professionals with stress reduction (Shapiro et al. 2005). Little work, however, has been conducted with persons experiencing HIV-related anxiety.

As self-compassion plays a key role in regulating emotions, a culturally relevant treatment approach designed to increase levels of self-compassion may help persons who struggle with HIV-related anxiety to engage in more successful self-management behaviours. Terry and Leary suggest that persons with higher levels of self-compassion should be able to seek medical help when it's needed and more effectively adhere to prescribed treatments (Terry & Leary 2011). They should also be more willing to distance themselves from unhealthy behav-

iours and monitor their health goals with less distraction (Terry & Leary 2011). A treatment approach designed to increase levels of self-compassion may also improve the ability of persons who struggle with HIV-related anxiety to manage their symptoms more effectively (Brown & Venable 2008).

Limitations

This study has a number of limitations that must be considered. Because of the cross-sectional and correlational nature of the research design, it is not plausible to make causal statements about the constructs of anxiety and self-compassion or specify the directionality of the results. Although this study identified a significant association between self-compassion and anxiety, it is important to consider that the constructs of anxiety and self-compassion may have a reciprocal influence on each other. For example, the presence of a long-standing anxiety disorder experienced by an individual living with HIV/AIDS may impact his or her ability to adopt a more self-compassionate attitude towards him or herself as well as towards the unique concerns that persons living with HIV encounter. A similar concern was voiced by participants who were receiving mental health treatment for depression and anxiety in a recent study conducted by Pauley & McPherson (2010). Although they agreed that adopting a self-compassionate attitude could be highly beneficial in managing anxiety and depression, they also felt that the negative experiences associated with a long-standing mental health problem would limit their ability to develop a sense of self-compassion towards their own circumstances. Future work is needed that examines associations and causal linkages between these two constructs in persons living with HIV/AIDS. An extension of this research may consider examining the effects of severity of illness.

Conclusions

The current study extends previous work on the relationship between the constructs of self-compassion and anxiety to the HIV/AIDS arena. Findings that enhance the understanding of the self-compassion construct in relation to HIV-related anxiety are an important step forward.

Self-compassion is a robust construct with cross-cultural relevance for HIV/AIDS. The significant linkage found between self-compassion and anxiety across a diverse international sample in this investigation suggests that a compassion-based intervention may have the potential for assisting persons living with HIV disease in the management of anxiety symptoms. Culturally relevant brief treatment approaches aimed at increasing self-compassion may represent a cost-effective, easily disseminated adjunct treatment for HIV symptoms. The need for further study is warranted.

Acknowledgements

This project was supported in part by NIH UL1 RR024131; NIH T32NR007081; NIH KL2RR024990; NIH R15NR011130; International Pilot Award, University of Washington Center for AIDS Research; University of British Columbia School of Nursing Helen Shore Fund; Duke University School of Nursing Office of Research Affairs; MGH Institute for Health Professions; Rutgers College of Nursing; and the City University of New York. The contents of this manuscript are solely the responsibility of the authors and do not necessarily represent the official views of the NIH or any other funders.

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