

Wounded warriors: Multiple identities, physical activity and life satisfaction

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ABSTRACT

Purpose: The purpose of the current study was to examine a model specifying that military, athlete, exercise, and disability identities would predict life satisfaction as mediated by physical activity (PA).

Methods: Seventy-one military veterans ($N = 71$) with impairments participated and completed Exercise, Athlete, Disability, Military, identity scales and Life Satisfaction and PA questionnaires.

Results: A mediation model indicated the indirect effect of the four identities on life satisfaction through PA was not significant. However, PA was predicted by the 4 identities, [$F(4, 66) = 2.49, p = 0.05$] and accounted for 13% of the variance, with disability identity having the only significant beta weight. Life satisfaction was also predicted by the 4 identities and PA ([$F(5, 65) = 4.88, p = 0.001$] and accounted for 27% of the variance. However, only the military and athletic identities had significant beta weights.

Conclusions: Our findings provide preliminary support for the value of military veterans maintaining a military identity and holding an athletic identity. The current findings suggest that sport psychologists and rehabilitation professionals take a more nuanced and open-minded perspective about veterans who desire to maintain a military identity when becoming civilians.

KEYWORDS

sport; exercise; quality of life; disability

DOI

10.14712/23366052.2023.1

INTRODUCTION

According to identity theory, people have multiple identities (Martin, 2013). Military personnel hold military identities (Lancaster & Hart, 2015) and athletic identities are salient for individuals playing sport (Guerrero & Martin, 2018). Additionally, people who engage in exercise are likely to have exercise identities (Anderson & Cychosz, 1994). Finally, individuals with disabilities may have a disability identity (Hahn & Belt,

2004). Given the multiplicity of identities that people can hold, the purpose of the current study was to examine how the multiple identities of military veterans with impairments, are associated with physical activity (PA) and life satisfaction. In particular, a major purpose was to examine identity theory (Stryker & Burke, 2000) using a model specifying that all four identities would predict life satisfaction as partially mediated by PA. Our findings should help inform sport psychologists who work with veterans who are frequently recruited into Paralympic developmental programs (Martin, 2017).

Identity lays on a continuum from non-existent to very strong and meaningful. Individuals with disabilities may purposefully deny any links to disability and refuse to accept they have a disability or conversely, fully embrace a disability identity (Dunn & Burcaw, 2013). Strong identities can be adaptive because they provide mental health benefits when people are successful in domains commensurate with their identity (Stryker & Burke, 2000). For instance, a military veteran, with a strong identity, who is promoted, will experience pride. Similarly, a Paralympic athlete winning a Paralympic medal will feel happiness (Martin et al., 2019). At the same time, a strong athletic identity may make leaving sport difficult because much of an athlete's lifestyle (e.g., training) is tied into being an athlete. Holding a strong exercise identity may be frustrating for someone with a disability if they cannot exercise because of an inaccessible gym (Martin, 2017). In contrast, it may also drive adaptive exercise-linked behavior (e.g., speaking to gym owners about accessibility issues). Finally, possessing multiple identities helps people, such as retired military veterans, adjust to leaving the military (Steffens et al., 2016).

Many of the research studies we report on next, link various identities to life satisfaction and present plausible explanations for why such identities might influence life satisfaction. However, the mechanisms leading from identities to life satisfaction are rarely examined. The current study was designed to address that weakness. More specifically, we argue that possessing strong identities across the four domains is positively linked to PA, which in turn leads to life satisfaction. The findings of two reviews both support the PA to life satisfaction association in people with impairments (Diaz et al., 2019; Ravenek et al., 2012).

The well-documented social (e.g., friendship), physiological (e.g., increased fitness), appearance (e.g., body image), and functional benefits (e.g., reduced pain) as a result of PA, should all lead to increased life satisfaction. In one study of military veterans, a white-water rafting experience produced feelings of "awe" which were then attributed to an increase in well-being one week later (Anderson et al., 2018). We should note that we are hypothesizing partial mediation as it would be rare that PA would fully explain the influence of the four identities on life satisfaction. We are also not proposing complete mediation as constructs independent of PA (e.g., social support), that we have not assessed may also partially mediate the identity-life satisfaction link. In the following sections we define each identity, report on research, and based on logic, theory, and empirical findings proffer hypotheses for the current model.

Military identity is "the degree to which soldiers and officers are willing to internalize the expressed values and goals of the armed forces" (Johansen et al., 2014, p. 527). A military identity begins developing in boot camp and during subsequent military experiences. A military identity can impact how veterans view themselves and their

place in the world post-military. Researchers have shown a military identity is linked to both well-being and ill-being. Britton et al. (2012) found that non-depressed veterans were 39% more likely to be satisfied with life than non-depressed non-veterans. Britton et al. (2012) suggested that men who found meaning in their military service, reflected in a military identity, were likely to have high life satisfaction.

However, Lancaster et al. (2018) suggested that ongoing emotional attachment to the military upon leaving the military is strongly correlated with trouble reintegrating after separation. In another study of combat veterans, it was almost unanimously reported that they experienced conflicting identities after separating from the military, and “the greater the commitment to the soldier identity, the more significant the strain” (Smith & True, 2014). Importantly, this suggests that an individual with a strong military identity may have difficulty reintegrating into society, leading to poor life satisfaction.

In regard to PA, some researchers have suggested that military veterans generally see a decline in their moderate-to-vigorous physical activity (MVPA: Littman et al., 2015). Veterans were no more likely than nonveterans to meet PA guidelines, but veterans did reach moderate-to-vigorous activity more than their nonveteran counterparts (Littman et al., 2013). A major rationale for examining if sport produces psychosocial benefits for veterans is based on the similarities between sport and the military (Martin & Munroe-Chandler, 2015). Fitness and PA is central to being in the military suggesting they may also be significant elements of a military identity. Other common elements between the military and sport involve teamwork and the hierarchical nature of sport and the military. Hence, it is plausible that a strong military identity may be positively linked to PA. Unfortunately, researchers have not examined the military identity and PA link after military service concludes. Given the conflicting ways in which a military identity is linked to PA and life satisfaction, we view examining the potential military identity, PA, and life satisfaction associations, as an exploratory endeavor.

Athletic identity is defined as the degree to which athletes identify with the athlete role (Brewer et al., 1993). Martin and colleagues were some of the first sport psychology researchers to examine athletic identity in disability sport. In their research, Martin et al. (1994) and Martin et al. (1997) discovered a self and social identity via factor analytic techniques. In the current study we were interested in self-identity. Other researchers have substantiated the value of an athletic identity by finding it is commonly associated with adaptive behaviors and cognitions (Shapiro & Martin, 2010), although it may be maladaptive in some contexts (e.g., injury, retirement). In particular, athletic identity is positively associated with life satisfaction and PA, and negatively linked to depression and anxiety (Tasiemski & Brewer, 2011). Given the above findings we hypothesized that athletic identity would be positively associated with life satisfaction. However, we also hypothesized mediation such that life satisfaction is enhanced, in part, because individuals with athletic identities engage in PA, which then leads to greater life satisfaction.

Exercise identity is defined as the extent to which a person includes exercise as part of their self-concept (Anderson & Cychosz, 1994). This association to exercise with the self gives meaning to past behavior, as well as predicting future behavior. Engaging in exercise and having exercise behavior reinforced by others validates a person's iden-

tity as an exerciser (Anderson & Cychosz, 1995). Researchers have found the more the role-identity of an exerciser becomes part of one's self-concept, the more likely it will predict exercise (Anderson & Cychosz, 1995). Researchers have found that a strong exercise identity is linked to more frequent exercise participation regardless of age, gender, and BMI (Wilson & Muon, 2008). Additionally, Anderson and Cychosz (1995) and Anderson et al. (1998) found that this relationship held for minutes of exercise per week, weeks of participation, perceived exertion, body fat percentage, muscular endurance, and fitness levels. Affective reactions to exercise can also influence a person's overall well-being. Strachan et al. (2010) found that older adults who had the highest scores of exercise identity had greater life satisfaction compared to participants with lower scores. Based on our review, we expected exercise identity to have a strong positive relationship with both PA and life satisfaction, and PA would partly mediate the exercise identity and life satisfaction association.

Disability identity is a relatively new area of investigation resulting in limited research (Dunn & Burcaw, 2013). Researchers have found that disability identity is negatively associated with depression and anxiety, even after accounting for activities of daily living and age (Bogart, 2015). Based on a review of six qualitative papers, Dunn and Burcaw (2013) determined a key element of holding a disability identity was an affirmation of disability. Individuals with a strong disability identity accept their disability and find meaning in it. Individuals with strong disability identities also tend to have strong self-esteem (Dunn & Burcaw, 2013). In turn self-esteem has been positively linked to exercise and sport participants (Martin, 2017). In brief, having a strong disability identity is thought to promote positive cognitions (e.g., life satisfaction) and adaptive health promoting behaviors (e.g., PA). Hence, we hypothesized that a disability identity would be positively associated with PA and life satisfaction and PA would mediate the identity and life satisfaction relationship.

We specifically examined military veterans with impairments for six reasons (Dunn & Burcaw, 2013). First, it is unclear to what degree such individuals will retain a military identity after they have left the military. Second, for impaired veterans who are active through sport and exercise we also are unaware of how strong or weak their exercise and sport identities are. Third, authors have speculated about the mostly positive, but sometimes negative, influences all four identities have on physical behaviors and cognitions, but little empirical evidence exists. Fourth, while research on athletic identity in disability sport is common (e.g., Martin, 2017), research on the other identities is limited, particularly with respect to veterans. Fifth, multiple identities help retired people adjust to retirement and experience life satisfaction (Steffens et al., 2016). Sixth, our findings may be applicable to a large number of people. For instance, there are over 5.5 million veterans in the USA living with impairments acquired from their military service, constituting 29% of the veteran population (The United States Census Bureau, 2013). Almost 1 million veterans have serious impairments that substantially influence their quality of life (United States Department of Veteran Affairs [USDVA], 2013).

To summarize, our major purpose was to test identity theory by examining if a model specifying that military, athletic, exercise, and disability identities would predict life satisfaction as partially mediated by PA. A second important related purpose was to determine if the four identities directly predicted life satisfaction and PA.

METHODS

Participants and Setting

Seventy-one military veterans with impairments from the USA participated. Participants served in the Army ($n = 48$), Marines ($n = 9$), Air Force ($n = 5$), Navy ($n = 5$) or Coast Guard ($n = 4$) and ranged in age from 23 to 70 ($M = 38.2$; $SD = 9.9$) years. Breakdown by gender was 90% male ($n = 64$) and 10% female ($n = 7$). Ethnic breakdown was as follows: Caucasian or White ($n = 54$), African-American or Black ($n = 8$), Hispanic or Latinx ($n = 8$), and Asian ($n = 1$). Impairment was as follows: Traumatic brain injury ($n = 17$), amputation ($n = 24$), spinal cord injury ($n = 16$), and other ($n = 14$). The other category included a variety of conditions such as nerve damage, burns, loss of hand function, etc.

Measures

Demographic scale. Participants were anonymous but provided their age, gender, ethnicity, military branch and disability condition.

Instruments. All instruments have been used in previous research with a strong history of producing scores considered to be valid and reliable. Each scale is discussed in detail next.

Exercise Identity. Participants completed the three-item role identity subscale of the Exercise Identity Scale (EIS; Anderson & Cychosz, 1994; 1995). Participants answered three questions on a 7-point Likert scale with 7 representing “strongly agree” and 1 representing “strongly disagree.” A sample item was “I consider myself an exerciser.” Wilson and Muon (2008) provided evidence indicative of construct validity and adequate internal consistency ($\alpha = 0.84$).

Athlete Identity. Participants completed the two-item self-identity subscale of the Athletic Identity Measurement Scale (AIMS). The AIMS has been used extensively in disability sport research (e.g., Martin, 2013) and researchers have found the self-identity scale produces scores considered valid and reliable. Participants answered two questions on a 7-point Likert scale with 7 representing “strongly agree” and 1 representing “strongly disagree.” Items were “I consider myself an athlete” and “I have many goals related to sport”.

Disability Identity. Participants completed the four-item subscale, affirmation of disability, of the Disability Identity Scale developed by Hahn and Belt (2004). Participants answered four questions on a 7-point Likert scale with 7 representing “strongly agree” and 1 representing “strongly disagree.” An example item is “I feel proud to be a person with a disability”. Hahn and Belt (2004) provided evidence indicative of construct validity.

Military Identity. Participants completed two subscales that most closely aligned with a sense of personal identity from the Warrior Identity Scale (WIS) developed by Lancaster and Hart (2015). The two subscales were the three item military identity commitment scale (e.g., “I have a strong sense of belonging to the military”) and the four item centrality of military identity (e.g., “In general, being a veteran is an important part of my self-image”). Participants answered questions on a 4-point Likert scale with 4 representing “strongly agree” and 1 representing “strongly disagree.” Evidence of construct, convergent, and divergent validity have been provided by Lancaster et al. (2018).

Life Satisfaction. Participants completed the Satisfaction with Life Scale (SWLS) (Diener et al., 1985) to assess global life satisfaction. Participants answered 5 questions on a 7-point scale with 1 representing “strongly disagree” and 7 representing “strongly agree.” A sample item was “In most ways my life is close to ideal.” Diener et al. (1985) established good reliability ($\alpha = 0.87$) and previous work in disability sport has demonstrated convergent validity (e.g., Martin et al., 2015).

Physical Activity. Participants completed the Leisure-Time Physical Activity Questionnaire (LTPAQ; Godin & Shephard, 1985). Participants reported how many days they did each mild, moderate and heavy PA and the typical number of minutes for those days, all for the last 7 days. For each intensity, the number of days was multiplied by the minutes to obtain total minutes per week per intensity. Then mild, moderate and heavy intensities were multiplied by 3, 5, and 9 metabolic equivalents (METs), respectively, and the three totals were added to obtain a total METs score that represented PA. Reviews (e.g., Sallis et al., 1993) and previous research with individuals with disabilities (Martin et al., 2013) has suggested the LTPAQ produces scores considered to be valid and reliable.

Procedures

We received permission from the University Internal Review Board to conduct our study and followed all APA ethical guidelines. The survey was then advertised to various military support groups on the internet. Participants anonymously completed the scales, and received a \$10 gift card upon completion. To insure our study was not underpowered to detect small to medium sized population effect sizes we conducted a power analyses using G-Power (Faul et al., 2009). We selected a multiple regression program with 5 predictor variables, 1 dependent variable, power set at 0.80, $p = 0.05$, and the ability to detect a medium effect ($f^2 = 0.25$; equivalent to Cohen’s $d = 0.5$), and it was determined that an N of 58 was required. It should be noted that many experts recommend an effect size of $d = 0.40$ for psychological research (Brysbaert, 2019). Re-running the power analyses at $d = 0.40$ resulted in a required N of 70.

Data Analysis

Data were initially screened for missing data, outliers, and normal distribution characteristics. Descriptive statistics, internal consistency estimates, and simple correlations for all variables were then calculated. We then used model four from the Process SPSS macro to conduct our mediation analyses (Hayes, 2017). Bootstrapping was employed with 10,000 random resamples in order to estimate the potential true population with confidence intervals (CI), set at 95%.

RESULTS

Reliability and Descriptive Statistics

Cronbach alphas were calculated for all 5 scales and were deemed acceptable as seen in Table 1 (Cronbach, 1951). Means, standard deviations, skewness and kurtosis are also presented in Table 1. Participants expressed a neutral disability identity with a mean slightly under the midpoint of the scale. The overall mean and SD for a disability identity suggests many of the participants only weakly identified with being impaired. This

is not uncommon as Chalk (2015) found that only 28% of his sample endorsed a disability identity. Athlete and exercise identities were stronger as they were in the upper four range of the seven-point scale. Military identity appeared to be the strongest identity with a mean of three on a four-point scale. Participants did not express a high level of life satisfaction as the mean corresponded to the label “neither agree or disagree”.

Table 1 Means, Standard Deviations, Skewness, Kurtosis, Alpha's and Pearson Product-moment Correlations for all Variables

Variable	1	2	3	4	5	6
1. Disability	–					
2. Exercise	0.18	–				
3. Military	0.01	–0.07	–			
4. Athlete	–0.01	0.63**	0.01	–		
5. Physical Activity	–0.20	0.25*	0.07	0.25*	–	
6. Life Satisfaction	0.07	0.03	0.27*	0.31**	–0.18	–
Mean	3.86	4.36	2.99	4.87	3694	3.97
SD	1.11	1.25	0.56	1.29	4635	1.23
Range	1.8–7	1.0–7	1.7–4	1.2–6.6	0.0–20,199	1.0–6.8
Skewness	0.75	–0.17	0.16	–0.67	2.39	–0.18
Kurtosis	0.86	0.17	–0.87	0.36	5.38	0.34
Alpha's	0.68	0.85	0.73	0.68	NA	0.85

Note: ** $p < 0.01$, * $p < 0.05$.

Correlations and Mediation Analyses

Initial screening suggested that, in general, variables were normally to moderately distributed. For example, skew and kurtosis ranged from –0.87 to +0.86 (Cramer, 1998) for all psychological variables. Correlations can be found in Table 1. Among the predictor variables the only significant correlation was between athlete and exercise identity. Both athletic and exercise identities were positively related to PA as expected, and athletic and military identities were positively linked to life satisfaction.

The indirect effect of the four identities on life satisfaction through PA was not significant ($b = 0-0.02$, 95% CI $[-0.08, 0.04]$, $p < 0.05$). This finding indicates that PA did not mediate the relationship between the four identities and life satisfaction. However, PA was predicted by the four identities, [$F(4, 66) = 2.49$, $p < 0.05$] and accounted for 13 percent of the variance and only a disability identity was significant.

Life satisfaction was predicted by the four identities and PA ($[F(5, 65) = 4.88, p < 0.001]$) and accounted for 27 percent of the variance (see Tables 1 and 2). Military identity and athletic identity were significant predictors.

Table 2 Physical Activity: Model Summary

<i>R</i>	<i>R</i> ²	MSE	<i>F</i>	df1	df2	<i>p</i>
0.3624	0.13	19797228.9	2.494	4	66	0.05

Variable	<i>b</i>	<i>B</i>	<i>se</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	-175.563	na	4025.962	-0.0436	0.960	-8213.7	7862.6
Military	707.434	0.085	961.137	0.736	0.460	-1211.5	2626.4
Athlete	412.826	0.114	530.604	0.778	0.430	-646.6	1472.2
Exercise	247.651	0.218	171.657	1.4427	0.150	-95.1	590.3
Disability	-983.714	-0.237	492.255	1.9984	0.040*	-1966.5*	-0.900*

Note: * $p < 0.05$ and confidence interval that does not contain 0.

Table 3 Life Satisfaction: Model Summary

<i>R</i>	<i>R</i> ²	MSE	<i>F</i>	df1	df2	<i>p</i>
0.52	27	1.18	4.88	5	65	0.001

Variable	<i>b</i>	<i>B</i>	<i>se</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	0.7788	Na	0.9846	0.7910	0.4318	-1.1876	2.7450
Military	0.5855	0.2700	0.2360	2.4810	0.0158*	0.1141*	1.057*
Athlete	0.4771	0.5000	0.1304	3.6600	0.0005**	0.2168*	0.738*
Exercise	-0.0599	-0.1900	0.0426	-1.4050	0.1648	-0.1450	0.0253
Disability	0.0628	0.0600	0.1240	0.5070	0.6141	-0.1848	0.3104
Physical Activity	-0.0001	-0.2700	0.0000	-2.3590	0.0213	-0.0001	0.0000

Note: ** $p < 0.01$, * $p < 0.05$ and confidence interval that does not contain 0.

DISCUSSION

The most notable finding from the current study involves the model predicting life satisfaction with the four identities and PA. Participants with the strongest military identities and athletic identities reported the highest life satisfaction. The positive link between athletic identity and life satisfaction supports a growing body of literature indicating the value of athlete’s holding an athletic identity (Martin, 2017). However, the current study extends this finding to military veterans and supports

the promotion of sport programming to veterans. The positive link between a military identity and life satisfaction while in line with some research (Markowitz et al., 2019) contradicts other research, and a persuasive argument about the negative role of any identity when participants are no longer able to occupy or live a life commensurate with that identity.

The most common reason for why a strong military identity may be maladaptive is because veterans no longer fill a military role. Hence, obtaining affirmation from a job well done, giving and receiving social support, and being around fellow military personnel with similar values is missing; potentially leading to feelings of purposelessness, anxiety, and depression. Although such an explanation appears to have merit, people can hold on to identities and maintain well-being, even when they are no longer filling a role commensurate with that identity. For instance, many veterans maintain military identities and simultaneously prepare for transitioning back to civilian life by making plans for employment or going to school (Keeling, 2018). In one study, five of six participants adjusted well and continued to hold military values that helped with the transition (Keeling, 2018). Although transitioning to a civilian life threatened their military identity, letting go of a military identity was thought to contribute to emptiness and an “existential crisis” (Keeling, 2018, p. 33). In brief holding onto military values and a military identity gave participants’ lives meaning and purpose. This is a critical finding for sport psychologists who may work with athletes with a military background who are struggling with transitioning out of the military and pursuing sport.

Other researchers have indicated that identities have temporal stability that links the past, present and future. Past accomplishments grounded in an identity that may have been strong in the past and weaker in the future can still provide feelings of pride and satisfaction. Furthermore, according to temporal self-appraisal theory, people are biased in how they use past failures and successes (Ross & Wilson, 2002). Past favorable events associated with past selves, feel closer and augment self-esteem, whereas past unfavorable events linked to past selves feel more distal and have less influence on self-regard. Given a military identity can provide positive feelings and feelings of purpose and meaning, the military identity and life satisfaction link seems entirely plausible, despite the prior noted challenges it may present to transitioning to civilian life. Using Cohen’s f^2 as a measure of effect size accounting for 27% of the variance in life satisfaction equals an effect size of .35 (Soper, 2013). Based on Cohen’s (1988) convention of 0.02, 0.15, and 0.35 for small, medium and large effect sizes, our R^2 values approximate medium to large effect sizes (Fritz et al., 2012).

The direct links of the various identities and PA was significant and extends the literature on identity theory. The only significant identity was a disability identity and it was negatively associated with PA. This means that holding a strong disability identity was associated with less PA compared to having a weak disability identity. Contrary to our hypothesis, participants with the weakest disability identity engaged in the most PA. One plausible explanation is that a disability identity acts as a proxy for the severity of a veteran’s disability, which in turn is a barrier to PA. Stated differently, veterans with minor disabilities (e.g., hand injury), that may not influence PA as much as a more serious impairment (e.g., SCI), may not identify with being disabled and do not endorse a disability identity. In contrast, participants with a serious disability that may have constrained their PA may also have had a stronger disability identity.

Using Cohen's f^2 as a measure of effect size accounting for 13% of the variance in PA is equivalent to a small effect size of 0.15.

A major purpose of our study was to determine if PA mediated the relationship between the four identities and life satisfaction. We found no support for this hypothesis. Other factors, that we did not measure, such as education, income, pain, social support, community integration, marital status, independence, transportation, etc., are likely to be potential candidates as important determinants of life satisfaction for individuals with disabilities (Chang et al., 2012). Future researchers are advised to consider such factors and factors specifically linked to PA that may be more predictive, than a global PA score like METs. For example, exercise self-efficacy has been linked to life satisfaction for individuals with multiple sclerosis (Goliottoni, 2009).

A few qualifications and limitations of our study are warranted. First, our exclusive focus on the four identities in the current study is not intended to be a dismissal of other important influences on PA and life satisfaction. Many individuals with impairments face a multitude of barriers to PA such as discrimination, inaccessible facilities, and chronic pain. Hence, even when possessing a strong identity that might motivate a veteran to engage in PA, he or she may be prevented from doing so for reasons out of their control. Similarly, holding a strong military identity that provides feelings of belongingness and pride, does not mean that veterans cannot also feel a sense of isolation, around civilians who they perceive as having little to no understanding of their military experiences. Such a nuanced understanding is important for psychologists to recognize. Although we tested mediation, our study was cross sectional in nature and a stronger design for testing mediation would be longitudinal in nature.

CONCLUSION

In conclusion, we found that a strong military and athletic identity predicted life satisfaction. This finding points to the value of continuing to hold a military identity after leaving military service and maintaining/acquiring an athletic identity. This perspective runs counter to research suggesting that a post-military identity may be problematic for adjusting to civilian life. Our findings suggest that support personnel take a receptive and open minded perspective in working with veterans who desire to maintain a military identity after becoming civilians. Like many identities (e.g., retired athlete) particularly identities where a role commensurate with that identity can no longer be fulfilled, it may be that thoughts and feelings linked to that identity can be both adaptive and maladaptive.

ACKNOWLEDGEMENTS

Authors in this paper do not have any conflicts of interests to disclose.

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