

Sexual Identity and Sexual Well-Being in Female Heterosexual University Students

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Abstract Sexual identity has generally been studied with a focus on sexual orientation and has not incorporated a general identity framework. Low levels of identity exploration and commitment have been shown to predict poor well-being in adolescents, but the relationship between sexual identity and sexual well-being has not been examined. The current cross-sectional survey was administered to 293 heterosexual female undergraduate students from a mid-sized university in Ontario, Canada. Participants completed the Measure of Sexual Identity Exploration and Commitment (Worthington, Navarro, Savoy, & Hampton, 2008), as well as several measures to assess sexual well-being. These included the Sexuality Scale (Snell & Papini, 1989), the Sexual Awareness Questionnaire (Snell, Fisher, & Miller, 1991), the Body Esteem Scale for Adolescents and Adults (Mendelson, Mendelson, & White, 2001; Mendelson, White, & Mendelson, 1997), and four individual items assessing sexual satisfaction (Laumann et al., 2006). Confirmatory factor analysis was used to test the measurement models of sexual identity and sexual well-being, and structural equation modeling was used to examine the relationship between sexual identity and sexual well-being. Results indicated that higher levels of sexual identity exploration and commitment predicted sexual well-being. However, other aspects of sexual identity, such as synthesis and sexual orientation identity, were not predictive of sexual well-being. The implications of using an identity framework for measuring sexual identity are discussed.

Keywords Sexual identity · Sexual well-being · Heterosexual women

Introduction

The process of adolescent identity construction has been well documented in the literature; however, the domain of sexual identity has been largely overlooked. The majority of previous research on sexual identity has focused exclusively on sexual orientation (e.g., Konik & Stewart, 2004; Tasker & McCann, 1999) and all prominent models of sexual identity (Cass, 1979, 1984; Fassinger & Miller, 1996; McCann & Fassinger, 1996) have focused on the identity development or coming out process of non-heterosexuals. In the present research, sexual identity will be considered more broadly as a process of defining oneself as a sexual being, and will not be limited to sexual orientation.

Erikson (1956, 1968) was the first to suggest that forming a clear and stable sense of self-identity is the primary developmental task of adolescence. According to his theory of psychosocial development, an established and well-integrated identity structure provides a sense of purpose on the path to adulthood, and serves as the basis for coping with problems and making decisions. To create an empirical measurement of identity, Marcia (1966) drew on two dimensions of Erikson's theory of identity formation: crisis and commitment. Under this paradigm, commitment refers to a sustained personal investment and dedication to a set of goals, values, and ideals. Crisis, or exploration, is a period of examining alternatives and searching for appropriate goals, values, and ideals, with the intention of making a commitment. Based on levels of identity exploration and commitment, Marcia (1966) identified four types of identity to create the Identity Status Paradigm. The lowest order status in this

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paradigm is *identity diffusion*, which refers to an adolescent who is uncommitted to and currently not exploring an identity. *Foreclosure* represents an individual who is committed to an identity without exploration. Generally, this is associated with a normative processing style which involves adopting the norms and values of important others, such as parents or guardians, without self-exploration of alternatives (Berzonsky, 1992). Adolescents in the *moratorium* phase are actively exploring options and alternatives, but have not yet committed to an identity. *Identity achievement* is realized when an adolescent has committed to an individual identity (i.e., a set of goals, values, and beliefs) based on active exploration of alternatives. Marcia's status conceptualization of identity has been well documented in the literature, but has only recently been applied to sexual identity development.

Identity and Well-Being

Many psychosocial correlates of identity statuses and processing styles have been demonstrated in research on adolescents. A predictive relationship has been shown between identity processing styles and maladjustment in youth. In general, diffuse-avoidant processing, which is characteristic of low levels of exploration and commitment, has been associated with conduct disorder, hyperactivity, and increased self-reported delinquency in high-school aged adolescents (Adams et al., 2001; Adams, Munro, Munro, Doherty-Poirer, & Edwards, 2005). The association of diffuse-avoidance with an external locus of control and the tendency to allow situational rewards to determine behavior may connect diffuse-avoidant processing to crime and deviance in adolescence. Additionally, the lack of direction and self-discipline associated with diffusion seems to place these youth at increased risk for academic problems and poor adjustment to university life (Berzonsky & Kuk, 2000). Vleioras and Bosma (2005) suggested that avoidance of identity issues (i.e., low levels of exploration) among university students was related to poor psychological well-being. One potential benefit of investigating identity exploration and commitment includes identifying students who may be at risk for behavioral and psychological problems (Berzonsky & Adams, 1999). However, while the utility of studying adolescent identity has been demonstrated, little research attention has been devoted to studying adolescent sexual identity development and its relationship to sexual well-being.

Sexual Identity

Sexual identity can be distinguished from sexual orientation as a process of defining oneself more broadly as a sexual being and includes dimensions beyond sexual orientation. In

addition to sexual orientation, the dimensions of a sexual identity might include sexual values and needs, preferred forms of sexual expression and sexual activities, and desired characteristics of sexual partners (Worthington, 2004). Worthington, Savoy, Dillon, and Vernaglia (2002) added sexual orientation identity to the concept of sexual identity, noting that the recognition and acceptance of a person's sexual orientation is an additional component of his or her general sexual identity.

Eliason (1995) studied heterosexual identity using an identity framework. Eliason examined university students' essays in terms of Marcia's (1966) Identity Status Paradigm and found that heterosexual students present different levels of exploration and commitment to a sexual identity. Research of this nature is important in breaking down the myth that heterosexuality is a monolithic identity that requires limited identity processing, but the major weakness of this research was the primary focus on sexual orientation as the sole component of sexual identity (Worthington et al., 2002).

Worthington et al. used their model of heterosexual identity to create a measurement tool that assessed four aspects of sexual identity (commitment, exploration, synthesis, and sexual orientation identity moratorium) across sexual orientations. The Measure of Sexual Identity Exploration and Commitment (MoSIEC, Worthington, Navarro, Savoy, & Hampton, 2008) is comprised of four distinct sub-scales. *Exploration* reflects the identity construct first operationalized by Marcia (1966) and refers to the level of consideration an individual has personally and actively given to aspects of their sexual identity. This consideration can be cognitive, behavioral, or both, but is not limited to behavioral exploration. *Commitment* was also derived from an identity status framework (Marcia, 1966) and reflects levels of clarity and devotion to aspects of a sexual identity. Commitment may be demonstrated as a sustained personal investment to a set of goals, values, and ideals. Specifically, exploration is characterized by the active pursuit of a refined identity whereas commitment is characterized by the choice to adopt a specific identity based on a set of goals, values, and ideals. *Synthesis* refers to the consistency between an individual's sexual identity and other aspects of their lives. A high score on the synthesis sub-scale is indicative of a sexual identity that is well integrated into all areas of an individual's life. The final sub-scale, *sexual orientation identity moratorium*, measures the extent to which an individual has considered their sexual orientation and the clarity and consistency of this aspect of their sexual identity.

Worthington et al.'s model considers an individual's development along multiple dimensions of sexual identity and it is emphasized that many individuals will have different levels of commitment to different aspects of their sexual identity. Worthington et al. (2008) tested this four-factor model of sexual identity in four samples using exploratory

and confirmatory factor analysis (CFA). In the current study, CFA was used to test this model in a sample of female university students. Structural equation modeling (SEM) was then used to explore the relationship between sexual identity and sexual well-being.

Sexual Well-Being

Subjective well-being has been defined as a person's cognitive and affective evaluation of their life, and positive well-being has consisted of life satisfaction, including satisfaction with specific important domains (e.g., work, relationships), positive affect, and low levels of negative affect, self-acceptance, and autonomy (Clark, Marshall, Ryff, & Wheaton, 2001; Diener, 2000). Despite the multidimensional approach used to study general well-being, a multi-faceted model of sexual well-being does not exist. Sexual well-being has generally been thought of as one's level of satisfaction with their sex life. Oberg, Fugl-Meyer, and Fugl-Meyer (2002) have assessed sexual well-being simply by asking participants to rate how satisfied or dissatisfied they are with their sexual lives. Sexual well-being can be seen as an analog to subjective well-being and, therefore, in defining sexual well-being for the current study, multiple dimensions were considered.

Sexual well-being has been associated with an increased satisfaction with personal sexuality, which includes sexual awareness, clarity of sexual values, and comfort with sexual communication (Gustafson, 1998), as well as sexual satisfaction in terms of the emotional and physical relationship, sexual functioning, and importance of sexuality (Laumann et al., 2006). Sexual esteem refers to the value a person places on him or herself as a sexual being and the general evaluation of one's potential to relate sexually to another person (Snell, Fisher, & Walters, 1989). Esteem related to body image refers to the subjective positive or negative evaluation of one's physical appearance and level of attractiveness. Body esteem has been evaluated in three areas: body esteem related to one's general appearance, body esteem related to weight satisfaction, and body esteem based on the perceived attributions of others (Mendelson, Mendelson, & White, 2001; Mendelson, White, & Mendelson, 1997). It has been shown to be an important component of women's sexual self-schema, which refers to cognitions regarding the sexual self (Wiederman & Hurst, 1997), a construct conceptually similar to sexual well-being. In the current study, subjective sexual well-being was defined as the cognitive and affective evaluation of oneself as a sexual being. Operationally, this included satisfaction with sexual relationships and functioning, sexual awareness, sexual self-esteem, body image esteem related to appearance, weight, and the attributions of others.

Proposed Model and Hypotheses

With our model, we aimed to test if the relationship between sexual identity and sexual well-being was similar to the relationship between identity and well-being. The current study was based on a sample of heterosexual women as there is limited research on heterosexual identity, and the construction of sexual identity and sexual well-being may be different across genders. Specifically, it has been found that women generally demonstrate higher levels of commitment and exploration earlier and more often than men, especially when the investigation included the identity domains of sexuality and interpersonal relationships (Kroger, 1997). Factors such as body esteem have also been shown to have a stronger impact on women's sexuality than men's (Haavio-Mannila & Purhonen, 2001), as such the indicators of sexual well-being for women may not be applicable for men. Therefore, the current study focuses exclusively on sexual identity and sexual well-being in women.

The general identity literature demonstrates how different levels of identity exploration and commitment contribute to well-being and adjustment in several areas of life. For example, low levels of identity exploration and commitment (i.e., diffuse identity status) have been commonly related to maladjustment and lower levels of psychological well-being (Adams et al., 2001, 2005; Vleioras & Bosma, 2005). However, as previously stated, the relationship between sexual identity development and sexual well-being is not known. It was hypothesized, based on the previous identity literature, that higher levels of sexual identity exploration and commitment would be related to greater sexual well-being. We also predicted that greater sexual identity synthesis would be related to greater sexual well-being and higher levels of sexual identity orientation moratorium would be related to lower levels of well-being (Fig. 1).

Method

Participants

Participants were 293 heterosexual female undergraduate students recruited from the University of Guelph. Participants ranged in age from 17 to 27 years ($M = 19.55$, $SD = 1.46$). The majority (92%) of the participants identified as white/Caucasian. A total of 224 (76.5%) participants reported previously engaging in sexual intercourse. Nearly half (46%) of the participants were seriously dating one person, and the majority (58%) of these participants had been in this relationship between 1 and 5 years.

Students were recruited through classroom visits by the researcher and provided with a copy of the link for the online

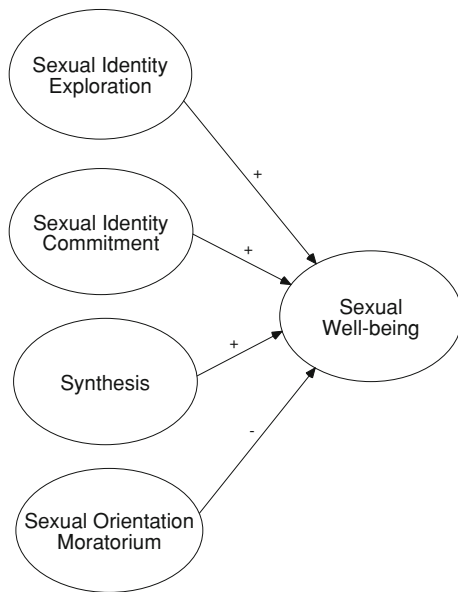


Fig. 1 Hypothesized model of the relationship between sexual identity and sexual well-being

survey. The researcher visited 14 undergraduate classes in multiple disciplines including family relations and applied nutrition, political science, geography, psychology, sociology, and biology. Approximately 3,200 students in total were enrolled in the classes visited. However, a portion of these students were likely enrolled in more than one of these classes or were absent on the day of recruitment, and recruitment efforts may not have reach all enrolled students. A total of 477 students responded to the online survey, which based on classroom enrollment is a 15% response rate. Of these, 87 (18.5%) participants were removed from the analysis because they did not complete the online survey; the sample was further reduced to meet age and gender requirements. Participants were not required to be sexually active to be eligible for participation in this research and were provided with this information during recruitment. For survey questions pertaining to sexual activity, participants could either respond to these questions based on sexual activity other than sexual intercourse or could choose a “not applicable” option. Additionally, potential participants were informed that an incentive would be offered for involvement in the study. This study received ethics approval from the Research Ethics Board at the University of Guelph.

Measures

Sexual Identity Measure

Sexual identity was measured using Worthington et al.’s (2008) MoSIEC. The MoSIEC is a 28-item questionnaire (see Appendix—Table 2 for a complete list of items) that measures four aspects of sexual identity: *exploration* (10

items), *commitment* (7 items), *synthesis* (4 items), and *sexual orientation identity moratorium* (4 items). The items were rated on a 5-point Likert-type scale from 1 (very uncharacteristic of me) to 5 (very characteristic of me). Two initial studies conducted by Worthington et al. (2008) using this measure have demonstrated high internal consistency across *commitment* ($\alpha = .83$ and $.80$), *exploration* ($\alpha = .85$ and $.87$), *sexual orientation moratorium* ($\alpha = .78$ and $.73$), and *synthesis* ($\alpha = .79$ and $.72$). Two-week test–retest reliability was also good, ranging from .71 to .91 in a sub-sample of 61 participants.

Sexual Well-Being Measures

Sexual Self-Esteem Sexual self-esteem was measured using the subscale of sexual esteem from the Sexuality Scale (SS; Snell & Papini, 1989). The SS is a 30-item scale that is rated on a 5-point Likert-type scale for agreement with each item: -2 (disagree), -1 (slightly disagree), 0 (neither agree nor disagree), $+1$ (slightly agree), $+2$ (agree). Ten items in this scale reflected *sexual esteem*, a positive regard for and confidence in the capacity to experience one’s sexuality in a satisfying and enjoyable way (e.g., I am confident about myself as a sexual partner). This subscale was used with a sample of 296 undergraduate males and females at a small midwestern university and demonstrated good reliability ($\alpha = .92$) and validity (Snell & Papini, 1989), which has been subsequently supported by Snell, Fisher, and Schuh (1992). Good reliability was also demonstrated in the current sample ($\alpha = .94$).

Sexual Satisfaction Sexual satisfaction referred to satisfaction with one’s sexual relationships, satisfaction with one’s sexual functioning, and the importance of sex in one’s life. To assess sexual satisfaction across these domains, four questions were adapted from Laumann et al. (2006). Participants were asked: “During the past 12 months, how physically pleasurable did you find your relationship with your partner to be?” and “During the past 12 months, how emotionally satisfying did you find your relationship with your partner to be?” Response options for both questions were on a 5-point scale, ranging from “not at all satisfying” to “extremely satisfying” with an additional “not applicable” option for participants who were not in a relationship in the last year. Participants were informed that they may consider either their current sexual partner or most recent sexual partner. Satisfaction with sexual functioning was assessed by the following question: “If you were able to spend the rest of your life with your sexual functioning the way it is today, how would you feel about this?” Response options were on a 5-point scale from “very dissatisfied” to “very satisfied.” And finally, participants were asked: “How important a part of your overall life would you say that sex is?” Response

options ranged from “not important at all” to “extremely important.” Adequate reliability was demonstrated in the current sample ($\alpha = .74$).

Sexual Awareness Sexual awareness was measured using two subscales from the Sexual Awareness Questionnaire (SAQ; Snell, Fisher, & Miller, 1991): *sexual consciousness*, a tendency to think and reflect on the nature of one’s own sexuality, and *sexual assertiveness*, a tendency to be assertive about the sexual aspects of one’s life. Each item was rated on a 5-point Likert scale from 0 (not at all characteristic of me) to 4 (very characteristic of me). Items included: I am very aware of my sexual feelings (sexual consciousness), If I were to have sex with someone, I’d tell my partner what I like (sexual assertiveness). Snell et al. (1991) provided evidence for acceptable reliability (alphas ranging from .80 to .89) and validity of these two subscales in two samples of 386 undergraduate students. The scale yielded good reliability in the current sample as well ($\alpha = .81$).

Body Esteem Body esteem referred to an individual’s self-evaluations of their body or appearance. Body esteem was measured using the *Body Esteem Scale for Adolescents and Adults* (BESAA; Mendelson et al. 1997, 2001). This measure was rated on a 5-point Likert scale and consisted of three subscales: BE-Appearance (10 items reflecting general feelings about appearance), BE-Weight (8 items reflecting weight satisfaction), and BE-Attribution (5 items reflecting one’s attribution about how others are evaluating their body or appearance). Strong test–retest reliability ($r = .83$ to $.89$) and convergent validity with two measures of self-esteem have been demonstrated in a sample of 1,334 high school, college, and university students (Mendelson et al., 1997). In the current sample, all three subscales of the BESAA demonstrated good reliability ($\alpha = .90$, $\alpha = .92$, $\alpha = .92$, for weight, appearance, and attribution, respectively).

Data Analysis

Confirmatory factor analysis was used to test a measurement model of both sexual identity and sexual well-being. The most important components of sexual well-being were determined based on the six indicator variables (sexual satisfaction, sexual esteem, sexual awareness, and body esteem related to weight, appearance, and the attributions of others) and a four-factor model of sexual identity was tested based on the four subscales of the MoSIEC (commitment, exploration, synthesis, and sexual orientation identity moratorium). CFA was also used to test a second-order model of sexual identity using the four factors as indicators of one general latent factor. All responses were coded in the affirmative direction and scale scores were then calculated according to the individual scale’s coding instructions.

Once the best-fitting models were established for each construct, SEM was used to explore the relationship between these constructs. All models were estimated using maximum likelihood estimation in the Analysis of Moment Structures Program (AMOS 6.0, Arbuckle, 2005). As suggested by Hu and Bentler (1998), multiple fit indexes were used to determine how well the model fit the data. Goodness of fit measures across various categories were used, including chi-square and chi-square minimum difference, Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). The chi-square index assesses the discrepancy between the estimated and the observed covariance matrices and should have a small value. However, due to its sensitivity to sample size, the chi-square statistic is often significant despite reasonable fit to the data (Byrne, 2001). Therefore, other fit indexes and squared multiple correlations (SMCs) were used to compensate for potential biases in the chi-square test. The amount of variance accounted for by a particular variable in the model was indicated by the SMC value. The goal was to retain variables that accounted for the greatest amount of variance in the model. Based on previously established guidelines (Browne & Cudeck, 1993; Byrne, 2001; Hu & Bentler, 1999), GFI, AGFI, CFI, and TLI values of .90 and greater were considered a good fit and values of .80 and greater a fair fit. RMSEA values of less than .05 were considered a good fit and values of up to .08 were accepted considering the other fit indexes were reasonable.

Results

Measurement Models

Sexual Identity

The first measurement model tested Worthington et al.’s (2008) four-factor model of sexual identity and included the four identity factors: exploration (10 items), commitment (7 items), synthesis (5 items), and sexual orientation moratorium (4 items). The initial four-factor measurement model of sexual identity (Model 1) was tested and the fit indexes suggested a less than adequate fit to the data, $\chi^2(299) = 988.02$, $p < .001$, GFI = .79, AGFI = .75, CFI = .75, TLI = .73, RMSEA = .09. Fit indexes for all models are reported in Table 1. Critical ratios indicated that all the paths in the model were statistically significant. Factor correlations were significant at the .001 level, except between exploration and sexual orientation moratorium.

The factor loadings ranged from .38 to .85. Only one standardized factor loading was below .40 (*sexid15* on the Exploration factor). The SMCs ranged from .12 to .74, with

Table 1 Goodness of fit indicators for sexual identity and sexual well-being measurement models and the structural model

Model	χ^2	<i>df</i>	CMIN/DF	GFI	AGFI	CFI	TLI	RMSEA	$\Delta\chi^2$ (Δdf)
Sexual identity									
Model 1	988.02	299	3.30	.79	.75	.75	.73	.09	
Model 2	886.52	275	3.22	.80	.77	.77	.75	.09	M1–M2 (24) = 101.68*
Model 3	826.70	252	3.28	.81	.77	.77	.75	.08	M2–M3 (23) = 59.82*
Model 4	770.25	230	3.35	.81	.78	.78	.76	.09	M3–M4 (22) = 56.45*
Model 5	682.09	209	3.26	.82	.79	.80	.77	.08	M4–M5 (21) = 88.16*
Model 6	624.21	189	3.30	.83	.80	.81	.78	.08	M5–M6 (20) = 57.88*
Model 7	484.51	188	2.58	.87	.84	.87	.85	.07	M6–M7 (1) = 139.70*
Model 8	1323.28	189	7.00	.57	.48	.49	.44	.14	
Sexual well-being									
Model 9	55.97	5	11.20	.93	.80	.84	.67	.19	
Model 10	3.82	2	1.91	.99	.97	.99	.98	.05	M9–M10 (3) = 52.15*
Structural model									
Model 11	673.44	292	2.31	.85	.82	.87	.85	.07	

Bold items indicate final best-fitting model, * $p < .001$

the variables *sexid15*, *sexid10*, and *sexid21_r* having values below .20 (.12, .16, and .19, respectively). The ultimate goal of the analyses was to test the relationship between sexual identity and sexual well-being; therefore, modifications were made to the measurement model of sexual identity to improve model fit before testing that structural relationship.

The largest MI was between the error terms for *sexid15* and *sexid10* (MI = 35.14), suggesting that the addition of a path between the error terms of these items may be appropriate. Both of these items measure the degree to which one has explored or attempted to understand their sexual orientation. It makes theoretical sense that these items share some degree of nonrandom measurement error. The highest MI for covariances was the error term for *sexid15* and the sexual orientation moratorium factor, indicating that this item may be cross-loading on both the exploration and sexual orientation moratorium factors. However, because the item *sexid15* considers the exploration of sexual orientation, it makes theoretical sense that this item would cross load on both factors. Also, *sexid15* had the lowest factor loading (.35). Based on this information, *sexid15* was removed from the model.

Removing *sexid15* resulted in a slight improvement in overall fit indexes (Model 2). Four more items were removed from the model in a stepwise fashion based on low SMCs and factor loadings, and model fit indexes were calculated for each individual change or adjustment to the model (Models 3–6). The weakest items were removed in sequence and fit indexes were calculated after each change to determine whether the deletion of the item improved the overall fit of the model to the data. In total, five items were removed from the model, two from the exploration factor, one from commitment, one from synthesis, and one from sexual orientation

moratorium. After removing the five items, the highest remaining MI for covariances was between the commitment and synthesis factors (MI = 108.50), suggesting that these variables should be allowed to correlate. A path was added between commitment and synthesis, which significantly improved the fit of the model.¹ No further improvements were indicated and Model 7 was retained as the best-fitting model of sexual identity, $\chi^2(188) = 484.51, p < .001$, GFI = .87, AGFI = .84, CFI = .87, TLI = .85, RMSEA = .07 (see Table 1).

A second-order factor model was also tested using the same 15 variables, and specified the four latent sexual identity factors from Worthington et al.'s model of sexual identity, and a higher-order sexual identity factor. There was a clear decrement in fit indexes for the second-order model (Model 8) as compared to the best fitting first-order model, $\chi^2(189) = 1323.28, p < .001$, GFI = .57, AGFI = .48, CFI = .49, TLI = .44, RMSEA = .14. Overall, the four-factor Sexual Identity model demonstrated significantly better fit to the data than the second-order model, as indicated by the chi-square values and comparison of fit indexes, and was thus used to test the structural relationships between sexual identity and sexual well-being.

Sexual Well-Being

The second measurement model tested was a one-factor model of sexual well-being and included the latent construct

¹ Given the strong correlation between the commitment and synthesis factors ($r = .82$), an alternate model was tested collapsing these two factors into a single factor. However, there was a decrement in fit values for the three-factor model and Worthington et al.'s (2008) four-factor model of sexual identity was retained.

of sexual well-being measured by six indicators: sexual esteem (*sexesteem*), sexual awareness (*sexaware*), sexual satisfaction (*sexsatis*), body weight esteem (*bewt*), body appearance esteem (*beapp*), and body esteem attribution (*beatt*). Total scale scores were used for each of the indicator variables instead of individual items because the Cronbach's alphas were in the acceptable range for all scales. One reference item was selected (*sexsatis*) and its path coefficient was fixed to a value of 1.0 to appropriately scale each factor. The remaining parameters were freely estimated.

The first attempt at testing the measurement model of sexual well-being revealed a negative error term for the variable *beapp*. This variable was removed from the model. The one-factor measurement model (Model 9) suggested a poor fit to the data, $\chi^2(5) = 55.97$, $p < .001$, GFI = .93, AGFI = .80, CFI = .84, TLI = .67, RMSEA = .19. Fit indexes for the measurement and structural models are reported in Table 1. Critical ratios indicated that all paths in the model were statistically significant at the .001 level. The standardized regression weights (or factor loadings) ranged between .24 and .89. The SMCs ranged between .06 and .70. *Bewt* had an SMC of .06, meaning that 6% of the variable's variance was accounted for by the factor, and a factor loading of .24. The analysis focused on removing the weakest indicators, while monitoring the influence on the other variables. The weakest indicators were identified by weak factor loadings and low SMCs; therefore, the variable with the lowest factor loading and SMC (*bewt*) was removed from the model.

Removing *bewt* from the model decreased the chi-square value to a desirable range. Fit values indicated that Model 10 was a good fit to the data, $\chi^2(2) = 3.82$, $p = .15$, GFI = .99, AGFI = .97, CFI = .99, TLI = .98, RMSEA = .05. Factor loadings for the remaining variables were above .40 and SMCs were all above .20. Modification indexes were also examined and did not suggest any further improvements to the model. Therefore, Model 10 was the final one-factor model of sexual well-being and included body esteem attribution, sexual esteem, sexual awareness, and sexual satisfaction.

Structural Model of Sexual Identity and Sexual Well-Being

The structural relationships between sexual identity and sexual well-being were tested using the best-fitting models of sexual identity (Model 7) and sexual well-being (Model 10). Based on previous identity research, it was expected that exploration and commitment would be positively correlated with sexual well-being. Results indicated that two of the four structural paths were statistically significant. Commitment and exploration were significant, whereas synthesis and sexual orientation moratorium were not. Fit indexes revealed that the structural model (Model 11) had a slight decrement in

fit values compared to the measurement models, $\chi^2(271) = 673.44$, GFI = .85, AGFI = .82, CFI = .87, TLI = .85, RMSEA = .07, but was an adequate fit to the data. Structural regressions indicated that the commitment (.76) and exploration (.39) factors had a positive relationship to sexual well-being, which is consistent with identity theory. Inconsistent with the current hypotheses, sexual orientation moratorium and synthesis had weak and non-significant relationships to sexual well-being. MIs indicated further improvements to the model, but the improvements involved further changes to the measurement model and were not made as the interest in this analysis was testing the structural relationship between sexual identity and sexual well-being. Therefore, Model 11 was the final structural model and demonstrated adequate fit to the data (see Fig. 2).

Discussion

Based on findings from the general identity literature, it was hypothesized that levels of sexual identity exploration and commitment would be related to sexual well-being. This hypothesis was supported as commitment and exploration had a strong, positive relationship with sexual well-being, meaning that greater personal consideration and clarity of sexual identity was related to higher levels of sexual well-being. This finding is theoretically aligned with the general identity research findings that levels of identity exploration and commitment are related to subjective well-being and adjustment (Adams et al., 2001, 2005; Berzonsky & Adams, 1999; Berzonsky & Kuk, 2000), and indicates that sexual identity development has some of the same features of identity development.

Although the relationships of synthesis and sexual orientation identity moratorium to sexual well-being were in the expected direction (i.e., a positive relationship between synthesis and sexual well-being and a negative relationship between sexual orientation identity moratorium), the results were not statistically significant. Perhaps synthesis or consistency across aspects of the sexual self is not always desirable, especially for young undergraduate students who may be exploring certain facets of their sexuality for the first time. For example, if an individual's values around sex are that sexual activity is limited to committed relationships, there may be times when their sexual needs include a desire to have sex when they are not in a relationship, which conflicts with their values. Inconsistencies between values, which can be a product of upbringing, religion or parental values, and sexual needs or desires may explain why synthesis does not significantly contribute to sexual well-being.

Additionally, all participants in the current sample identified as heterosexual and were not in a state of moratorium about their sexual orientation. Three of the five items

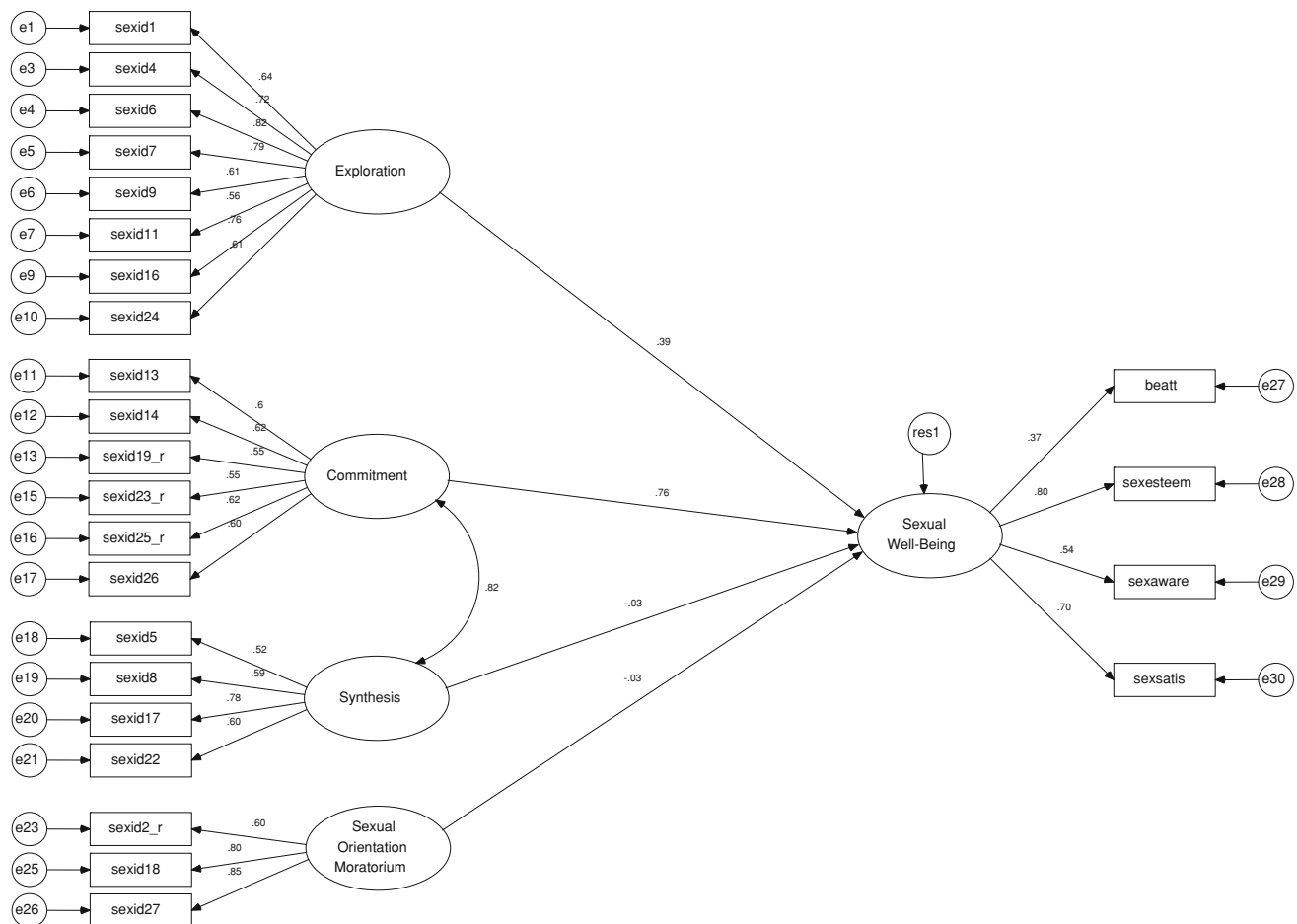


Fig. 2 The structural relationship between sexual identity and sexual well-being

removed (*sexid10*, *sexid15*, and *sexid28*) from the sexual identity measurement model were related to sexual orientation. Therefore, consideration of sexual orientation was not a salient factor for sexual well-being in the current heterosexual sample. Worthington et al. argued that their model holds across six sexual orientation groups (heterosexual men, heterosexual women, gay men, lesbians, bisexual men, and bisexual women); however, tests of measurement invariance have not been conducted to determine if the MoSIEC is equivalent across sexual orientation groups. Multi-group invariance refers to the items in a particular measure operating equivalently across different populations and comparisons across groups should only occur once the measurement model is deemed invariant (Byrne, 2001).

Worthington et al. reported reasonable fit for their four-factor model of sexual identity (i.e., CFI = .94, TLI = .93, SRMR = .06, RMSEA = .06); however, a second-order model of sexual identity was not tested. In the current study, a second-order model was tested but results did not support it. Considering sexual identity as a general overarching factor may obscure the multidimensional nature of this construct and the information that each subscale provides about sexual

identity formation. In fact, the MoSIEC is not currently used as a single-score and our results advocate against such use in the future. A four-factor model has the benefit of providing more specific information about sexual identity exploration and commitment, two key factors in identity formation. Additionally, it provides information about sexual orientation moratorium, which may be differentially meaningful across sexual orientations. Marcia's (1966) Identity Status Paradigm, the identity model influencing the MoSIEC, is grouped by status and provides information across four levels of identity formation. Similarly, in previous models of gay and lesbian identity development, sexual identity is not conceptualized as an overarching construct, but as a series of phases toward greater identity synthesis (Fassinger & Miller, 1996; McCarn & Fassinger, 1996). Therefore, both empirical and theoretical support exists for the four-factor model of sexual identity, but future replication is needed to further establish this model.

Worthington et al. (2008) conceptualized their model as a "theoretically-based, multidimensional measure of the processes of sexual identity development" (p. 32). Therefore, sexual identity development is not characterized by a series

of hierarchical stages, but by the multiple processes involved in sexual identity development. The main contribution of the current research is demonstrating that levels of sexual identity commitment and exploration are significantly related to levels of sexual well-being. Women who choose a set of sexual goals, values, and ideals based on personal consideration are more likely to experience greater sexual satisfaction, sexual awareness, sexual esteem, and body esteem. Further, [Berzonsky and Adams \(1999\)](#) suggested that one implication of investigating identity exploration and commitment is to identify students who may be at risk for psychological and behavioral problems. The MoSIEC may be useful for counselors and sex educators to identify adolescents and young adults who are vulnerable for low levels of sexual well-being.

Limitations

The current investigation is cross-sectional and uni-directional, providing information about how levels of sexual identity are related to sexual well-being at one point in time. Future research examining the bi-directional relationship of sexual identity and sexual well-being over time is needed. Further, the current sample consisted of undergraduate university students from one Canadian university who were predominately Caucasian and the results may not be generalizable across other populations, age groups or ethnicities. [Dunne \(2002\)](#) reported that sex research participants tend to have more liberal sexual attitudes and greater sexual experience than their counterparts of the same age and gender. Therefore, participants in this sample may have been more sexually experienced and more comfortable talking about sex than the general population. Additionally, the current study only explored the sexual identity of women and the model should be examined across genders to determine if the constructs of sexual identity and sexual well-being are defined similarly in males. Men have demonstrated lower levels of identity exploration and commitment in terms of sexuality and interpersonal relationships ([Kroger, 1997](#)), thus these components of sexual identity may be less salient predictors of men's sexual well-being than women's. Further, a model of male sexual well-being may include different indicators than have been demonstrated in the current sample of women. For example, body esteem has been shown to have less influence on men's sexuality ([Haavio-Mannila & Purhonen, 2001](#)) and may not be a significant indicator of men's sexual well-being.

Conclusions and Future Directions

In conclusion, the current study provided support for a four-factor model of sexual identity as proposed by [Worthington](#)

et al., [2002, 2008](#)) over a second-order model. [Bieschke \(2002\)](#) suggested that [Worthington et al.](#)'s model is a useful integration of existing identity frameworks and sexual identity research that is inclusive across sexual orientations. Although it was proposed that the MoSIEC applies to individuals of all sexual orientations, the model may need to be adapted based on sexual orientation. Whereas an inclusive model has its utility ([Bieschke, 2002](#)), aspects of sexuality may be differentially conceptualized and salient across sexual orientations. In the current study, the majority of the items that were removed from the model to improve the fit were related to sexual orientation. Past research suggested that there is greater personal consideration given to non-heterosexual identities ([Ellis, 2000](#); [Konik & Stewart, 2004](#)). This paralleled findings from research on Caucasian identity development ([Fouad & Brown, 2000](#); [Helms & Piper, 1994](#)), indicating that members of a majority group often do not consider their position of privilege. Since heterosexuals may not consider their sexual orientation to the same extent as an individual with a non-heterosexual identity, the items asking them to consider their exploration and commitment of sexual orientation created some degree of misfit in the model. [Hoffman \(2004\)](#) suggested that it is necessary to consider diverse models of sexual identity development across sexual orientations to account for the unique experiences of those with a sexual-minority identity. Future analyses using CFA to test multi-group models to examine measurement invariance can address the utility of the MoSIEC across sexual orientations.

The present research also provided an initial framework for a multidimensional conceptualization of sexual well-being. The results support sexual esteem, sexual satisfaction, sexual awareness, and body esteem attribution as the most important components of sexual well-being found in this study. This preliminary model is the first step to creating a multidimensional measure of sexual well-being. Future efforts in this direction may include the use of EFA to determine specific items related to these constructs that would be most useful in measuring sexual well-being, and investigating other components of sexual well-being. Further, the broader well-being literature indicated that variables such as affect and mood influence general well-being ([Diener, 2000](#); [Eid & Diener, 2004](#)). Sexual affect and current mood were not included in the current model of sexual well-being. Additionally, behavioral aspects of sexuality were not explored in the current study. Future research on sexual well-being may explore its influence on sexual risk-taking and sexual behaviors, as well as the role of sexual abuse and psychological factors on sexual well-being. Further work in this area may serve to strengthen the bridge among sexual identity theory, measurement, and application.

Appendix

See Appendix—Table 2.

Table 2 Measure of Sexual Identity Exploration and Commitment (MoSIEC) items for each subscale prior to model trimming

<i>Exploration</i>	
sexid1:	I remember a time when I was trying different kinds of sexual activities.
sexid3:	I went through a period in my life when I was trying to determine my sexual needs.
sexid4:	I am actively trying to learn more about my own sexual needs.
sexid6:	I am open to experiment with new types of sexual activities in the future.
sexid7:	I am actively trying new ways to express myself sexually.
sexid9:	I went through a period in my life when I was trying different forms of sexual expression.
sexid11:	My sexual values will always be open to exploration.
sexid15:	I will always try to achieve a deeper understanding of my sexual orientation.
sexid16:	I am actively experimenting with sexual activities that are new to me.
sexid24:	I can see myself trying new ways of expressing myself sexually in the future.
<i>Commitment</i>	
sexid13:	I know what my preferences are for expressing myself sexually.
sexid14:	I have a clear sense of the types of sexual activities I prefer.
sexid19_r:	I do not know how to express myself sexually.
sexod21_r:	I have never clearly identified what my sexual values are.
sexid23_r:	I have never clearly identified what my sexual needs are.
sexid25_r:	I am uncertain about my preferences for different modes of sexual expression.
sexid26:	I have a firm sense of what my sexual needs are.
<i>Synthesis</i>	
sexid5:	My sexual values are consistent with all of the other aspects of my sexuality.
sexid8:	My understanding of my sexual needs coincides with my overall sense of sexual self.
sexid17:	The ways I express myself sexually are consistent with all of the other aspects of my sexuality.
sexid22:	The sexual activities I prefer are compatible with all the other aspects of my sexuality.
sexid28:	My sexual orientation is compatible with all other aspects of my sexuality.
<i>Sexual orientation identity moratorium</i>	
sexid2_r:	My sexual orientation is clear to me.
sexid10:	I am actively trying to understand my sexual orientation.
sexid18:	I sometimes feel uncertain about my sexual orientation.
sexid27:	My sexual orientation is not clear to me.

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