Sexual Dysfunction and Quality of Life after Treatment for Localized Prostate Cancer: The Role of Sexual Desire and Bother

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Prostate Cancer (PC)

- Most common non-skin cancer among U.S. men
  - Over 220,000 new diagnoses in 2011
  - Over 2.2 million current survivors

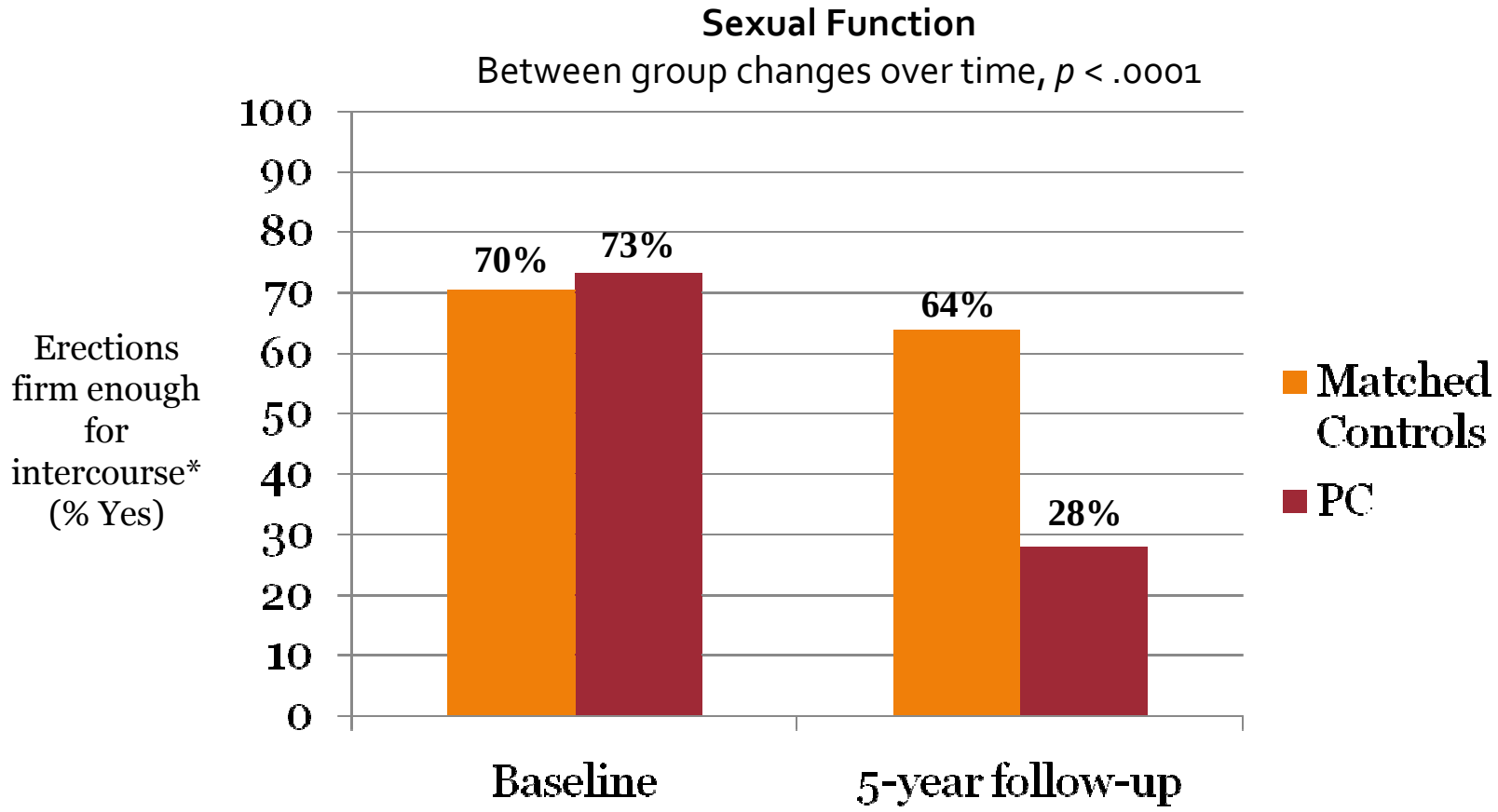
- Diagnosed in early stages for the majority of men and standard treatment options include radical prostatectomy (RP) and radiation therapy (RT)
  - 5- and 10-year survival rates are 100% and 93%, respectively

Prostate Cancer (PC)

- Survivorship is often affected by long-standing, disease- and treatment-related side effects that **challenge quality of life (QoL)**
- **Sexual side effects** are particularly distressing
- Declines in sexual functioning have been shown to be **more severe than age-related morbidity** and are experienced **across treatment types**

Sexual Side Effects

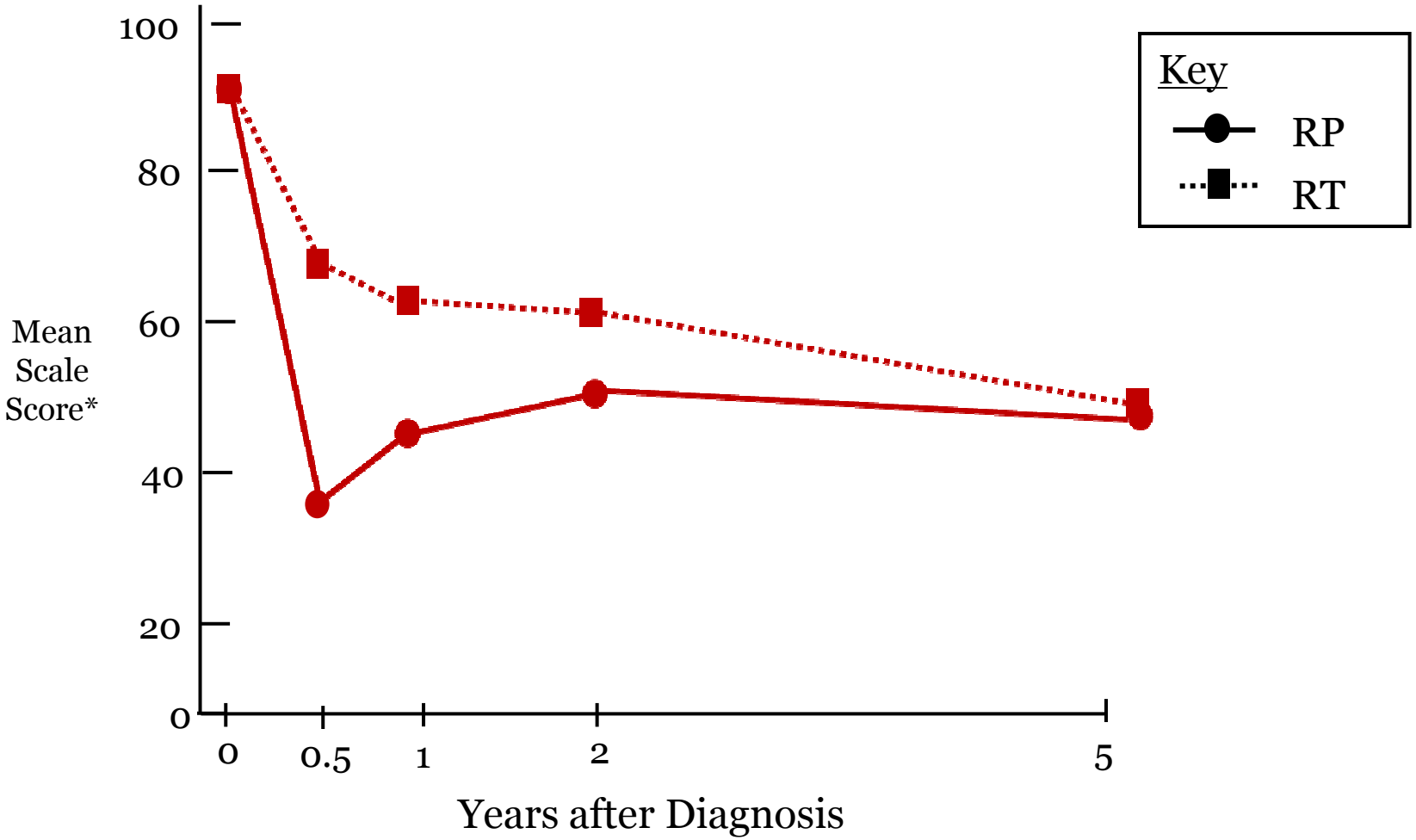
Compared to Matched Controls



*Measured using the UCLA – Prostate Cancer Index (UCLA – PCI; Litwin et al. 1998; Hoffman et al., 2004)

Sexual Side Effects

Across Treatment Types



*Measured using the UCLA – Prostate Cancer Index (UCLA – PC; Litwin et al. 1998; Potosky et al., 2000; 2004)

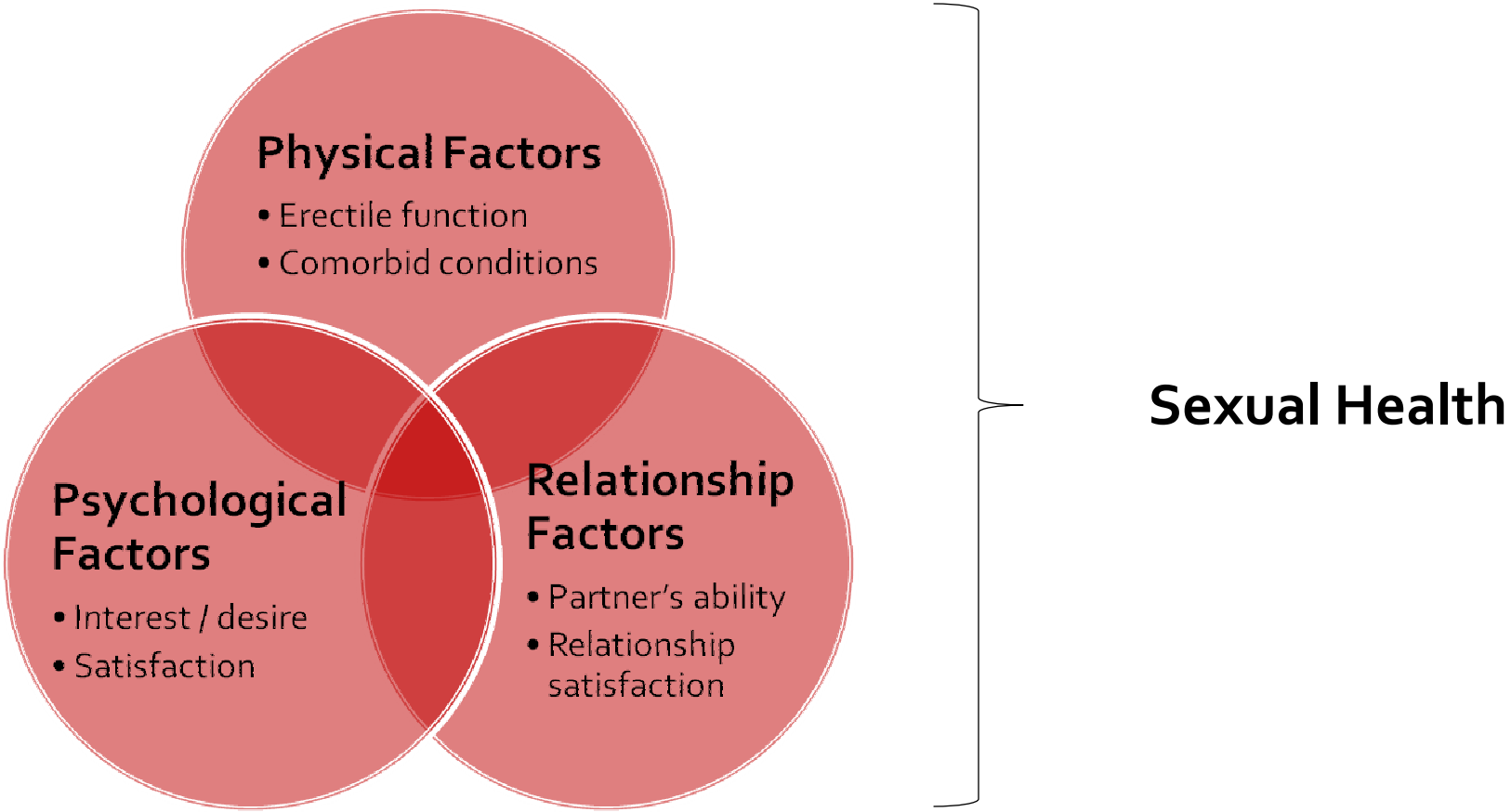
Sexual Side Effects

- Generally associated with **compromised QOL**
  - Increased distress, depression, and anxiety
  - Body image and masculinity
  - Self-esteem
  - Quality of marital/partner relationships
- However, typically assessed using measures that primarily focus on **physiologic impairment**
  - Erectile dysfunction
- Impact of other domains of **sexuality** on QOL have rarely been considered

(e.g., Beck et al., 2007; Boehmer & Babayan, 2004; Bokhour et al., 2001; Chambers, 2008Howlett et al., 2010; Nelson, Choi, Mulhali, & Roth, 2007)

Sexuality

- Multidimensional construct



Sexuality

- Although PC treatment often leads to decrements in multiple facets of sexuality
  - Erectile dysfunction / impotence
  - Loss of sexual desire
  - Problems with orgasms
  - Overall sexual dissatisfaction

(Chambers, 2008; Schover et al., 2002; Wittmann, Northouse, Foley, Gilbert, Wood, Balon & Montie, 2009)

Sexuality

- There is **variability** in the extent to which men are bothered or distressed by side effects
  - Not all men who experience dysfunction are bothered by it
  - Measures of dysfunction and bother often uncorrelated
- For some men, overall adjustment and well being may be independent of recovery of function
- Important to consider different dimensions of sexuality independently in determining effects on QOL

(Chambers, 2008; Schover et al., 2002; Wittmann, Northouse, Foley, Gilbert, Wood, Balon & Montie, 2009)

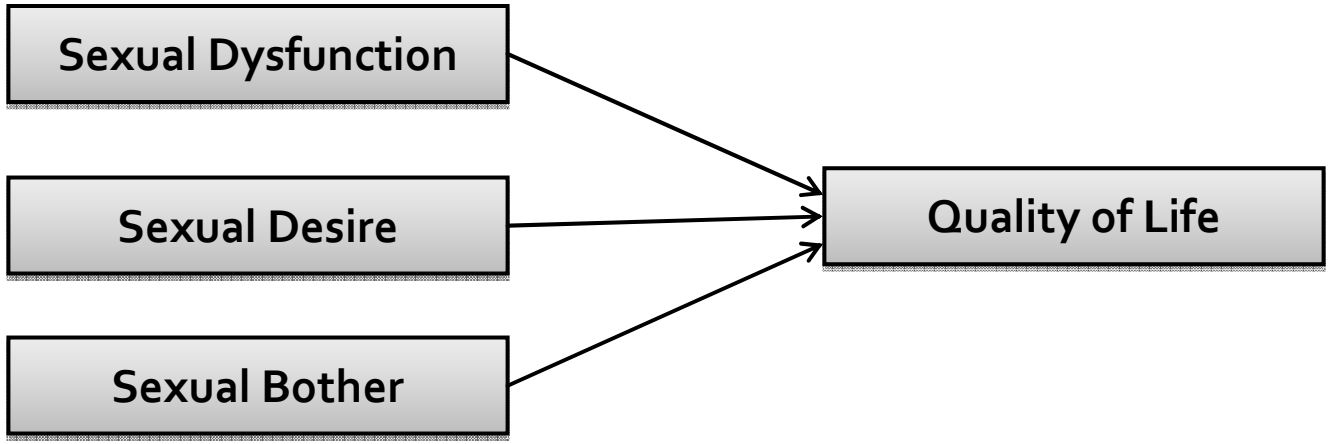
Sexuality

- Although sexual side effects are generally associated with worse QOL
- Most studies have focused on **sexual dysfunction** (i.e., physiologic impairment)
- Independent effects of other facets of sexuality, such as **sexual desire** and **bother**, have rarely been considered

(Chambers, 2008; Schover et al., 2002; Wittmann, Northouse, Foley, Gilbert, Wood, Balon & Montie, 2009)

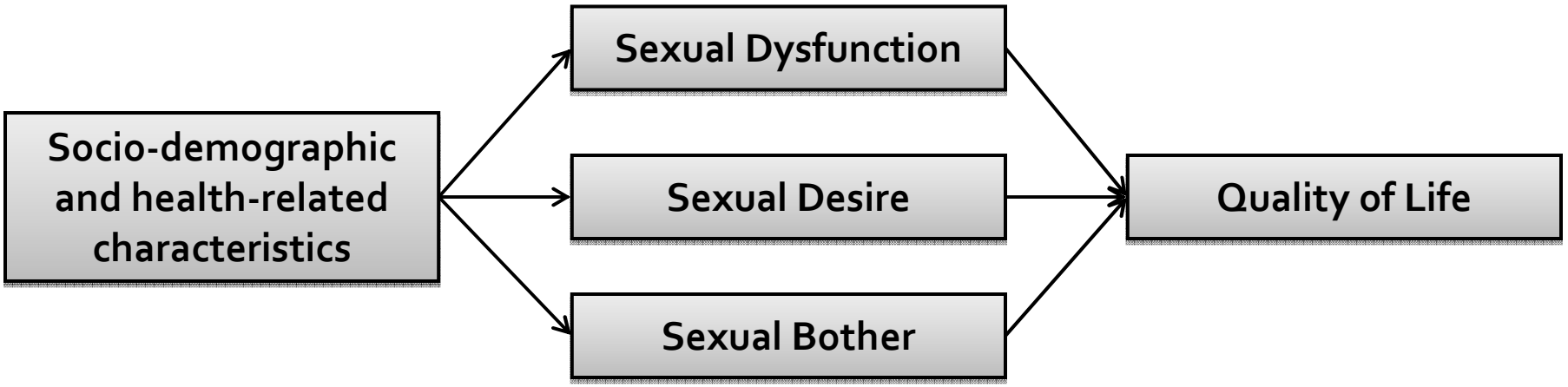
Dysfunction, Desire, and Bother

- It is largely unknown how **sexual desire** and **bother** impact QOL among post-treatment PC patients, controlling for the effects of **sexual dysfunction**



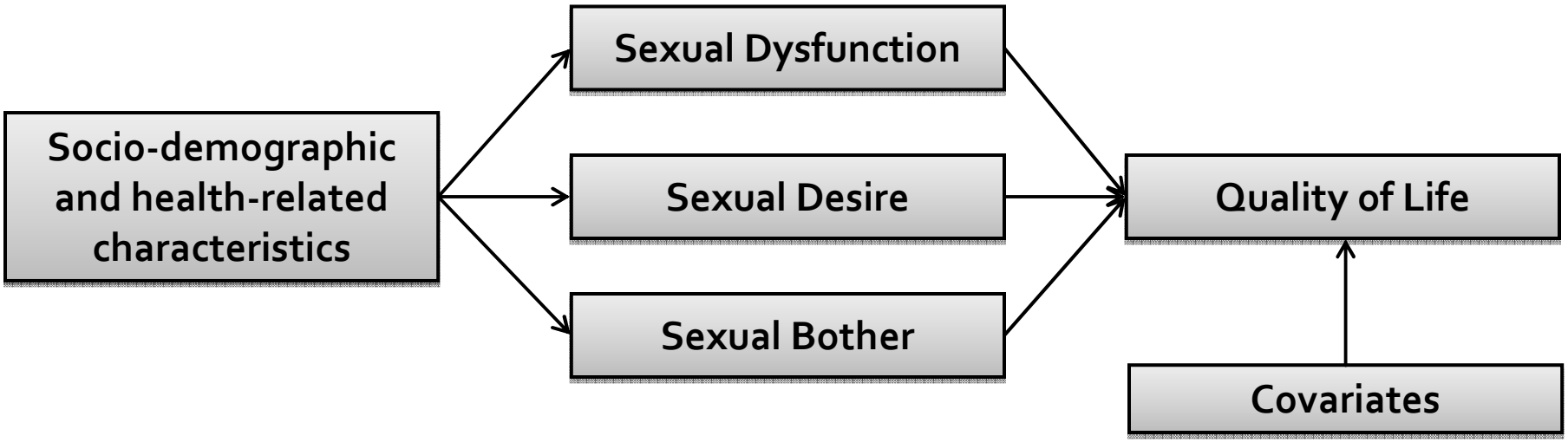
Dysfunction, Desire, and Bother

- Furthermore, unknown how socio-demographic and health-related characteristics relate to different aspects of sexuality
- Implications for more general QOL?



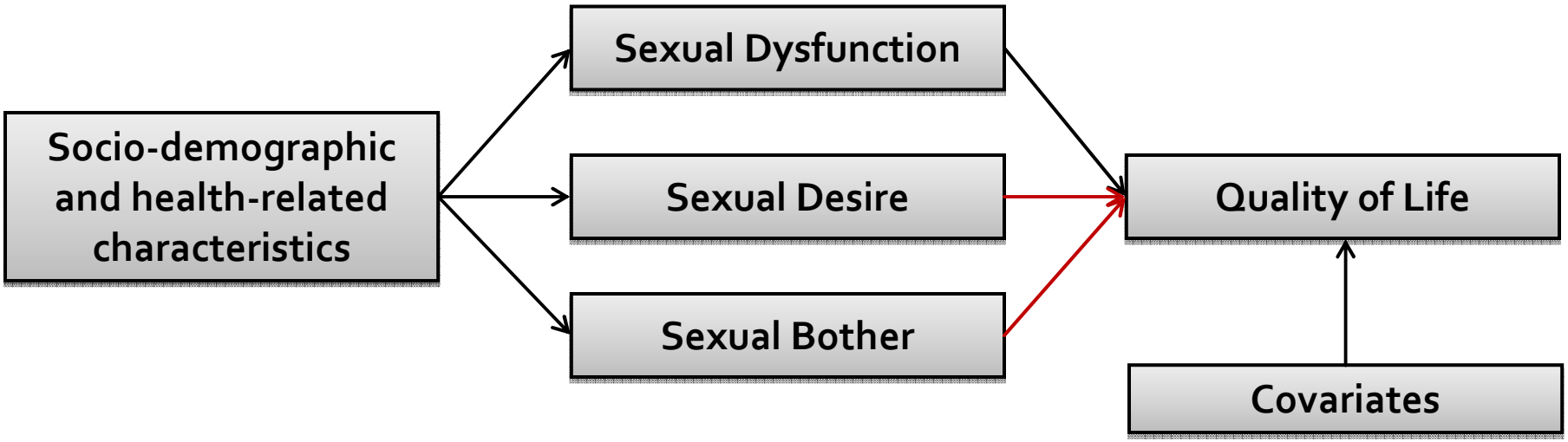
Present Study

- Evaluated the direct and indirect effects on QOL



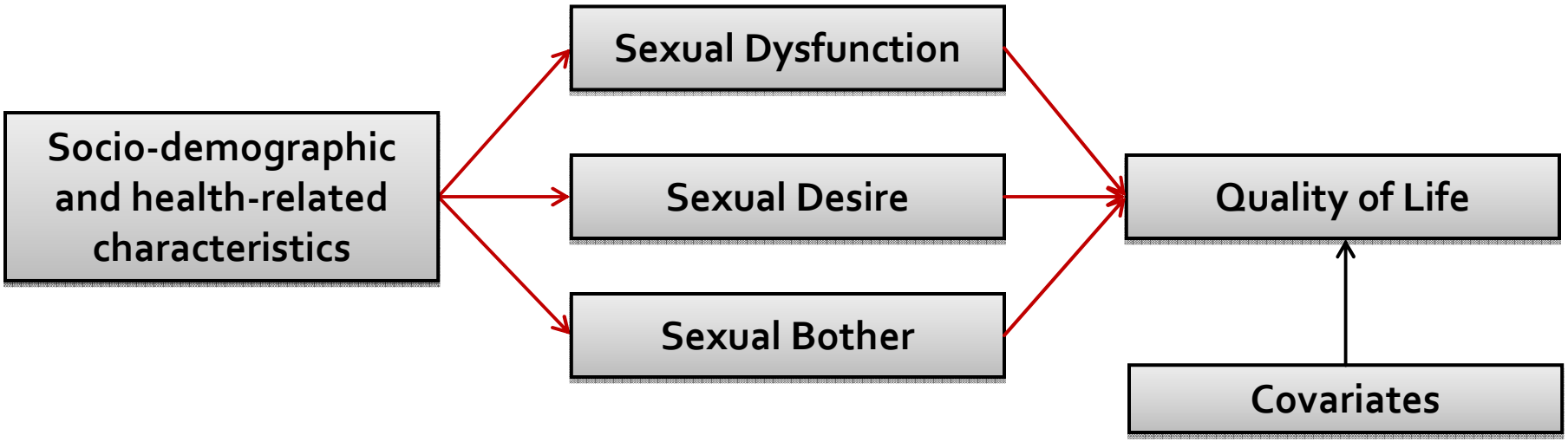
Present Study

1. Direct effects of **sexual desire** and **bother** on QOL would be significant, above and beyond the effects of **sexual dysfunction**



Present Study

2. Indirect effects of baseline characteristics on QOL, through sexual outcomes, would be significant
   - Risk factors associated with decrements in both sexuality and QOL would be identified



Present Study

- Participants were part of a larger NCI-funded study that evaluated the effects of a psychosocial intervention on QOL
  - Data from baseline assessment visit (2 weeks prior to the start of the intervention)
- Inclusion criteria
  - Age 50 or older
  - Undergone treatment for localized PC within the past 18 months
  - At least a 9th grade reading level
- Exclusion criteria
  - Prior history of any non-skin cancer
  - Significant cognitive impairment
  - Active psychiatric symptoms within the past 3 months
    - E.g., posttraumatic stress disorder, psychosis, or alcohol/drug dependence

Measures

- Socio-demographic and health-related covariates
  - Age
  - Ethnicity
  - Education
  - Employment status
  - Household income
  - Medical comorbidities
  - PC-related covariates
    - Type of treatment (RP or RT)
    - Time since diagnoses
    - Time since treatment completion

Measures

- Socio-demographic and health-related covariates
  - Current relationship status (yes/no)
  - Ongoing sexual relationship prior to PC diagnosis (yes/no)
  - Pre-treatment sexual functioning (i.e., frequency of sexual activity; times per month)

Measures

- Sexual outcomes
  - UCLA-Prostate Cancer Index (UCLA) for post-RP participants
  - Expanded Prostate Cancer Index Composite (EPIC) for post-RT participants
  - **Sexual dysfunction** = physiologic impairment
    - Measured using a composite score of 7 items
    - Sample items:
      - "How would you rate the usual quality of your erections?"
    - Higher scores indicate *more* sexual dysfunction
      - Recoded from original scale

(Litwin et al., 1998; Wei et al., 2000)

Measures

- Sexual outcomes
  - UCLA-Prostate Cancer Index (UCLA) for post-RP participants
  - Expanded Prostate Cancer Index Composite (EPIC) for post-RT participants
  - **Sexual desire**
    - Measured using a single item
      - "How would you rate your level of sexual desire during the past four weeks?"
      - 5-point response scale: "0 – Very poor" to "4 – Very good"
    - Higher scores indicate *more* desire

(Litwin et al., 1998; Wei et al., 2000)

Measures

- Sexual outcomes
  - UCLA-Prostate Cancer Index (UCLA) for post-RP participants
  - Expanded Prostate Cancer Index Composite (EPIC) for post-RT participants
  - **Sexual bother**
    - Measured using a single item
      - "Overall, how big a problem has your sexual function been for you during the last 4 weeks?"
      - 5-point response scale: "0 – No problem" to "4 – Big problem."
    - Higher scores indicate *more* bother

(Litwin et al., 1998; Wei et al., 2000)

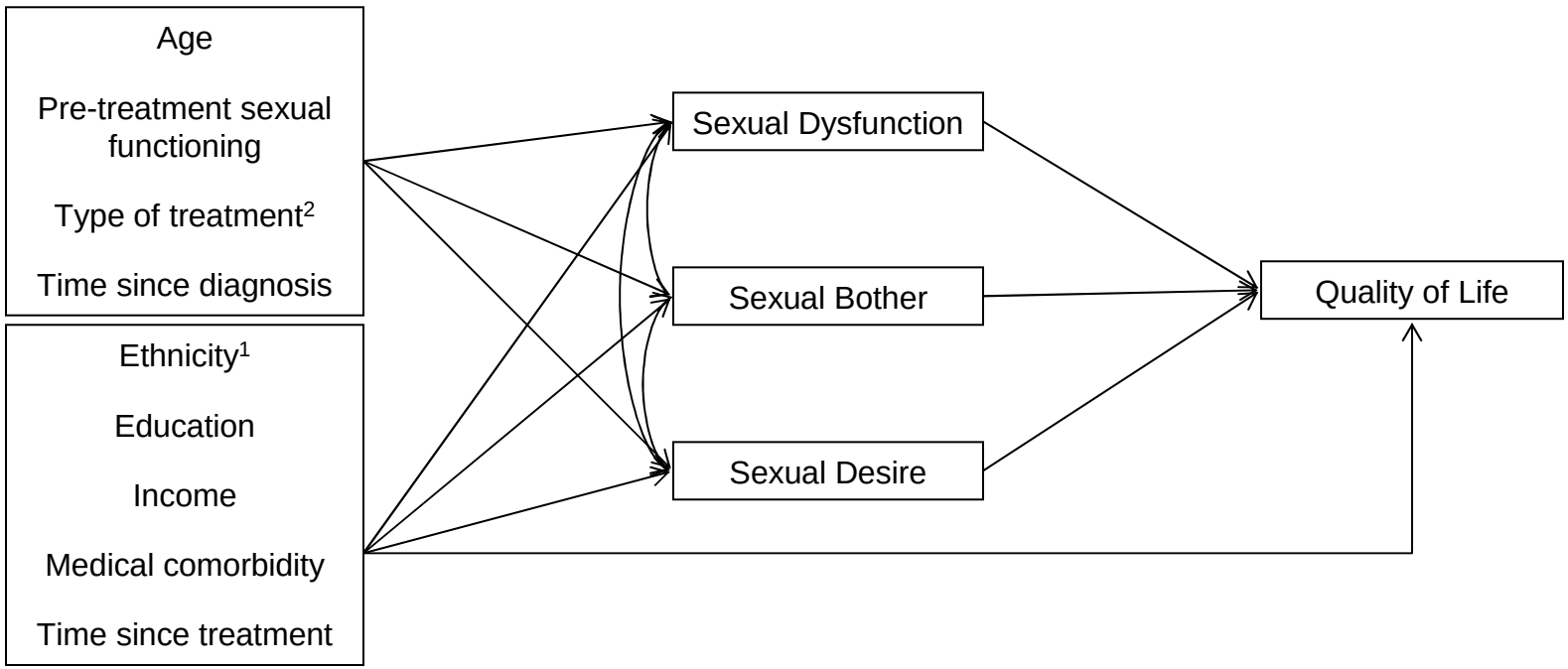
Measures

- QOL
  - Functional Assessment of Cancer – General Module (FACT – G)
    - Measures physical, social/family, emotional, and functional domains of QOL
    - A single item that measures current sexual satisfaction was removed to avoid overlap with other variables in the model
    - A total score was calculated from the remaining 26 items
    - 5-point response scale: "1 – Not at all" to "5 – Very much"
    - Higher scores indicated *better* QOL

(Cella et al., 1993)

Statistical Analyses

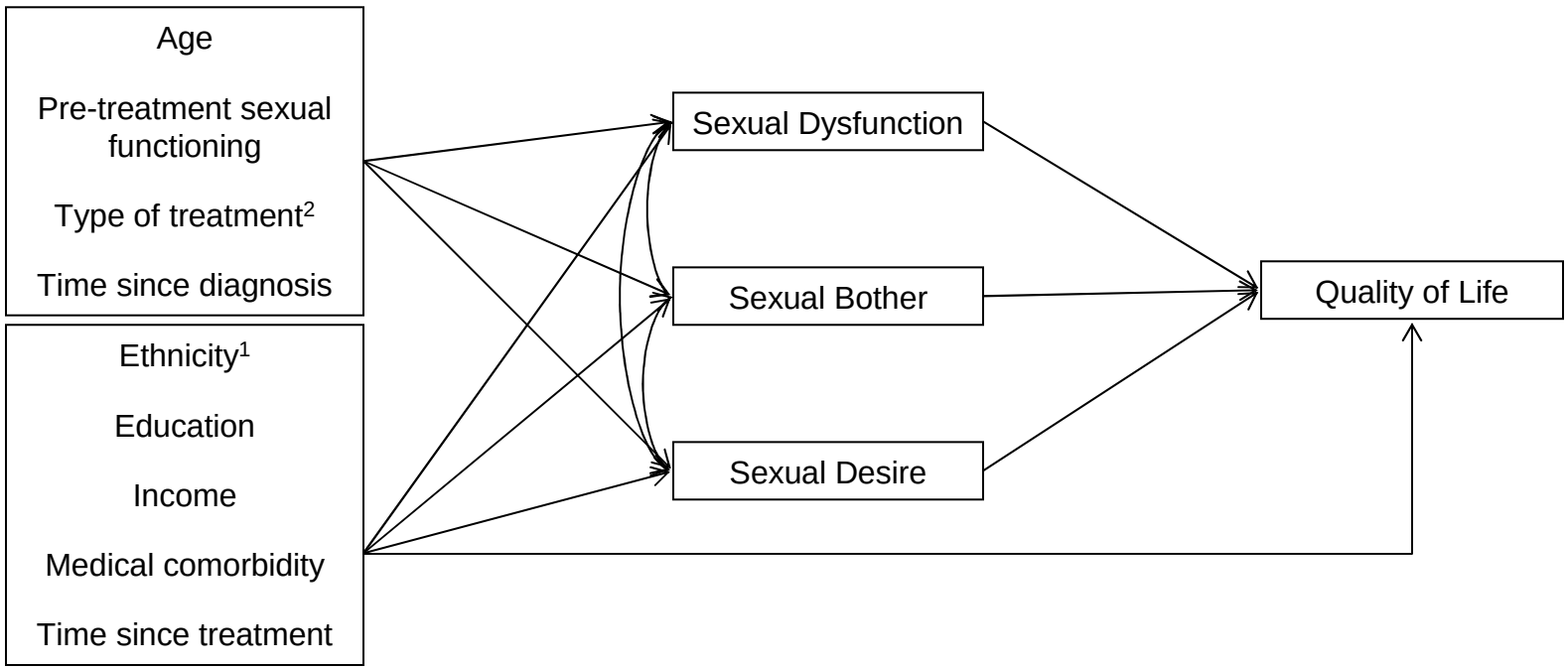
- All variables tested for normality
- Covariates included based on theory and prior findings



[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Statistical Analyses

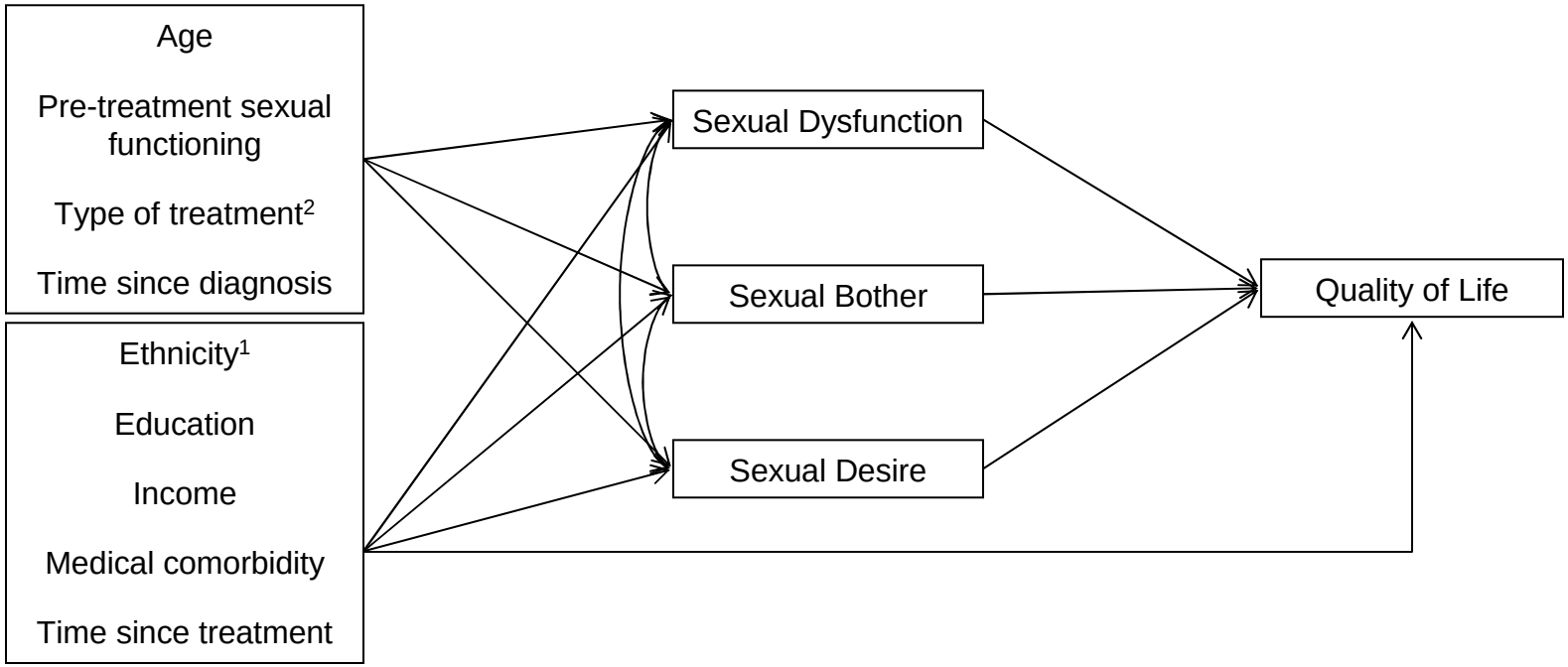
- Structural equation modeling
  - Full information maximum likelihood (FIML) approach was used to generate parameter estimates



[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Statistical Analyses

- Structural equation modeling
  - Model fit indices
    - Chi-square statistic (χ^2 p-value >.05); comparative fit index (CFI >.95); standardized root mean square residual (SRMR <.08); root mean square error of approximation (RMSEA <.06)



[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group; Kline, 2005

Results

- Participants (N = 260)
  - Age: 65 years (SD = 7.6)
  - Ethnically diverse
    - 41% Non-Hispanic White, 17% African American/Black, 42% Hispanic
  - Education: 13.8 (SD = 3.4)
  - Income: $51,000 (SD = $50,000)
  - Average of 2 comorbid medical conditions
    - 17% reported diabetes
    - 14% reported cardiovascular disease

Results

- Participants (N = 260)
  - Treatment: 47% RP and 53% RT
  - 16 months (SD = 6.9) post-diagnosis
  - 10 months (SD = 4.5) post-treatment

Results

- Participants
  - 75% were married or in an equivalent relationship
  - 81% reported to have been in an ongoing sexual relationship prior to PC diagnosis

Results

- Sexual dysfunction
  - Mean = 6.06 (SD=6.1); range of 0–22
- Sexual desire
  - Average response between "poor" to "fair"
- Sexual bother
  - Average response between "small problem" to "moderate problem"

Results

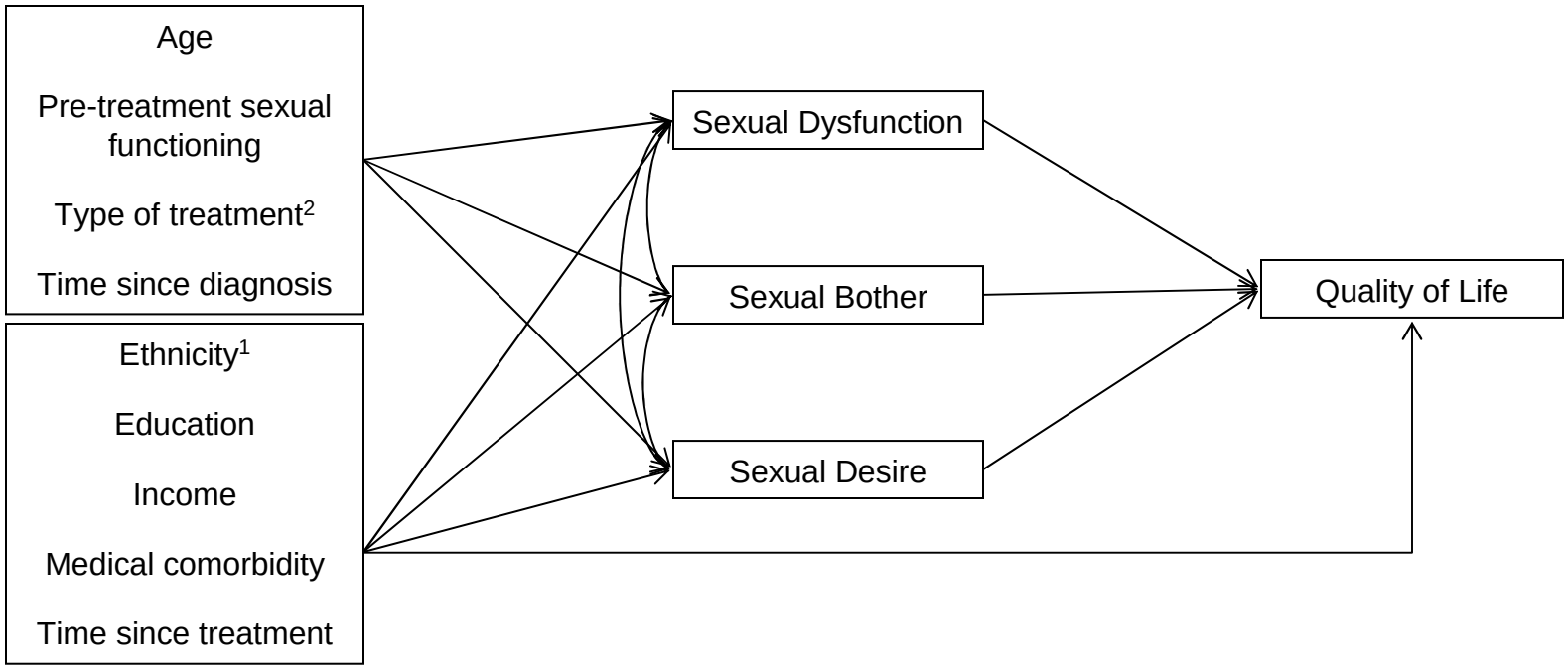
- Quality of life
  - Mean = 85.2 (SD = 13.6)
  - Below average levels of QOL compared to published means
    - Localized PC (RP and RT Means = 92.4 and 90.2, respectively)
    - Age-matched control populations (Mean = 87.1)

(Wei et al., 2002)

Results

- Model fit the data

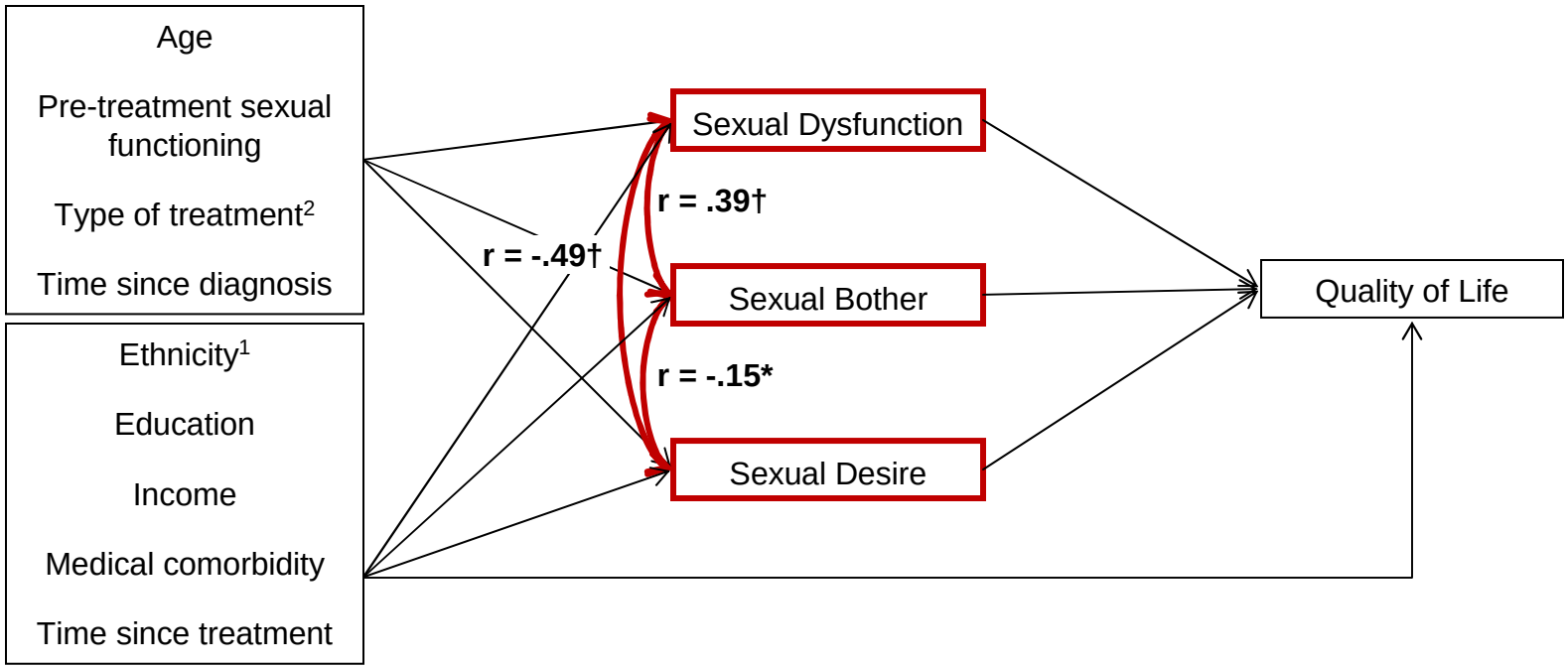
χ^2 *p*-value = .14; CFI = .99; SRMR = .01; RMSEA = .05



[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Results

- All sexual outcomes were significantly related

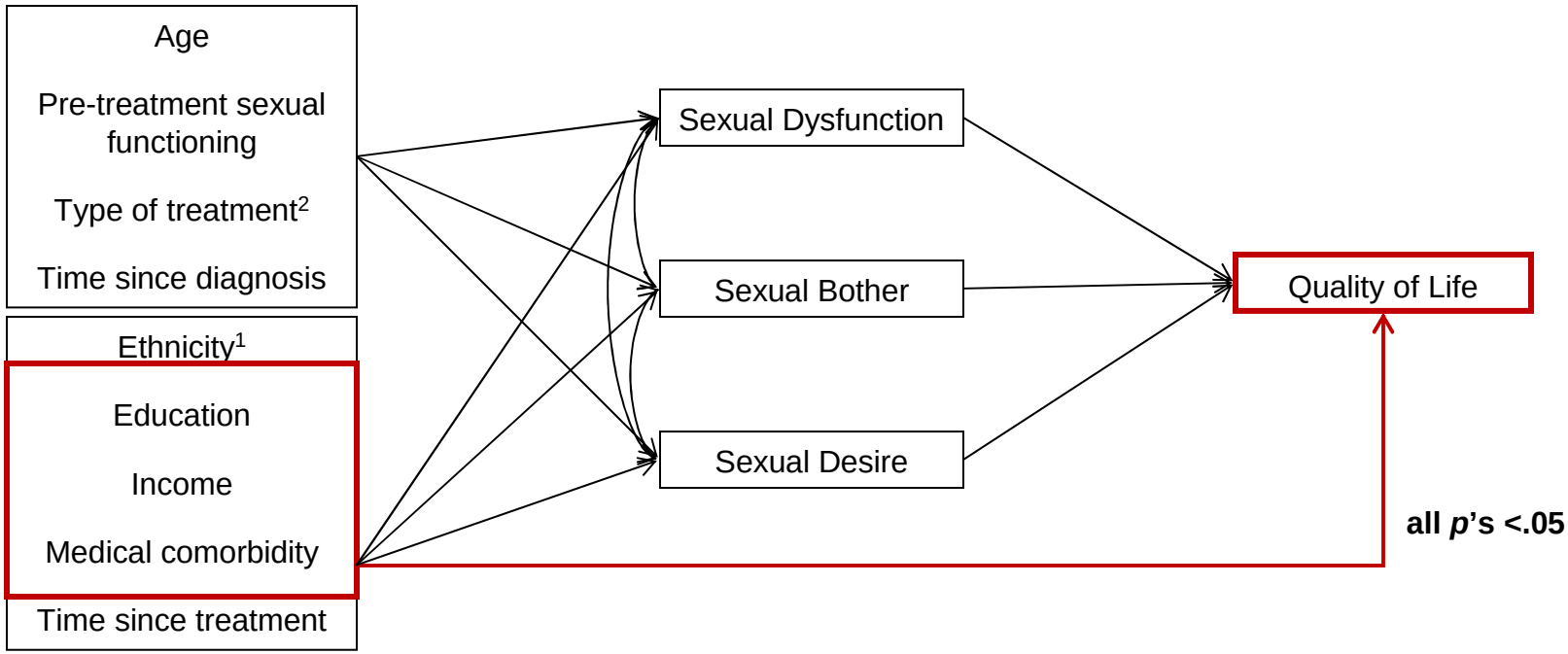


*p<.05; **p<.01; †p<.001

[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Results

- More years of education, higher income, and fewer medical comorbidities related to higher levels of QOL



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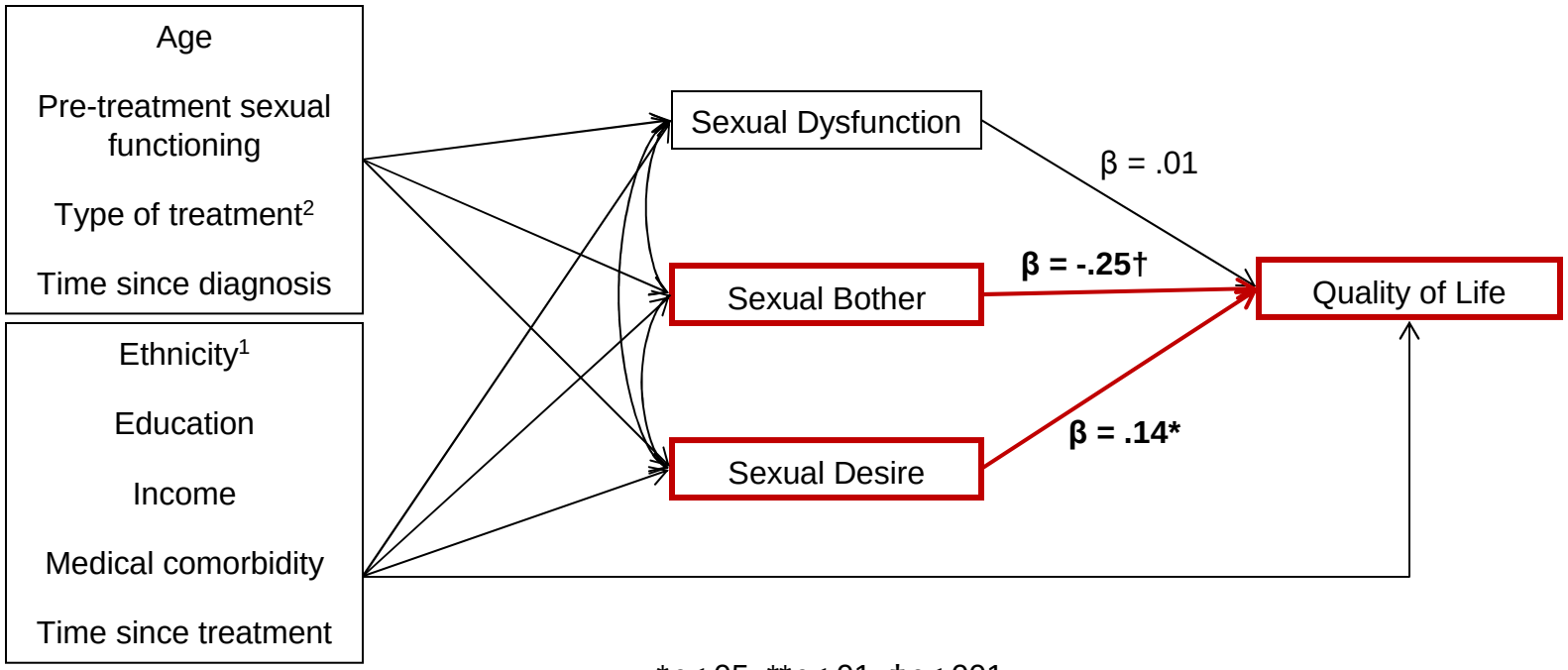
Direct Effects

- Sexual desire and bother were significantly related to QOL, but not sexual dysfunction



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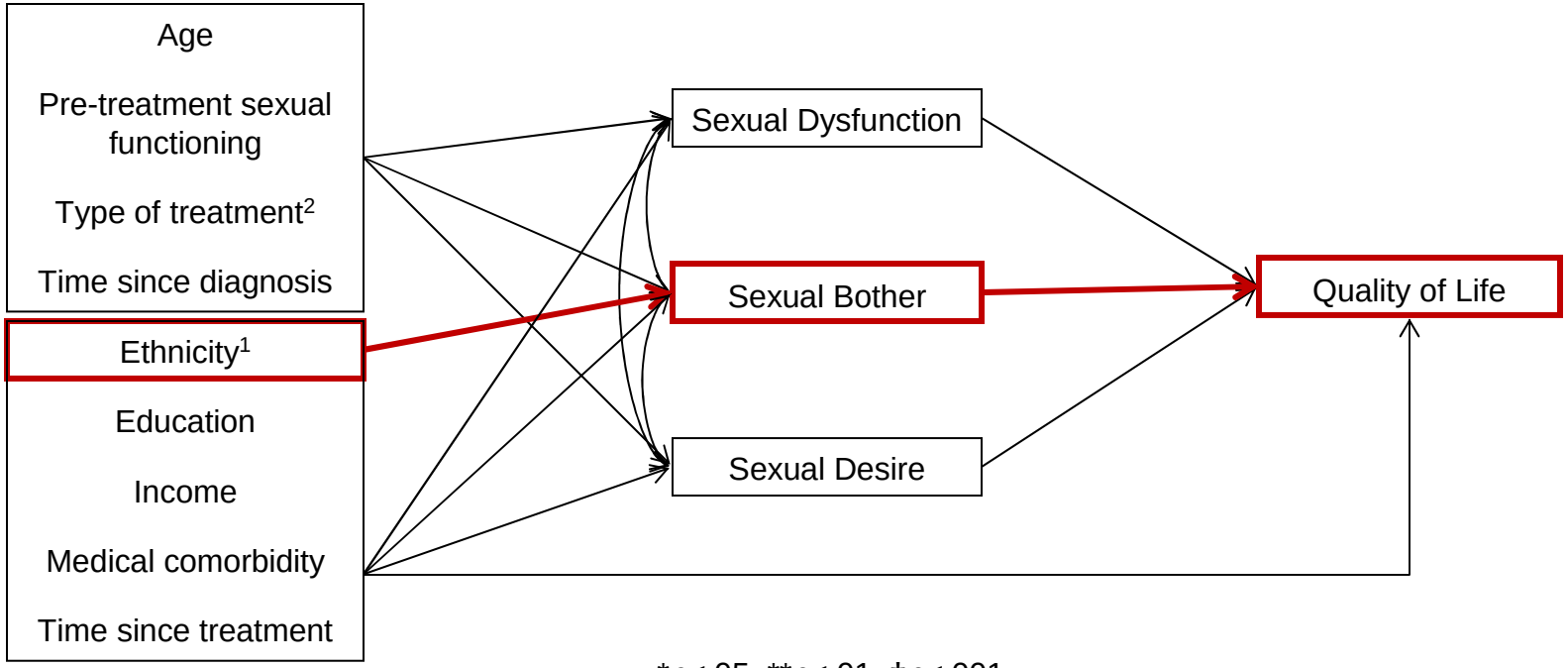
[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Indirect Effects

- Ethnicity → Sexual Bother → QOL
  - Hispanic ethnic identification was related to more sexual bother and lower levels of QOL (indirect effect; β=-.04, *p*=.05)



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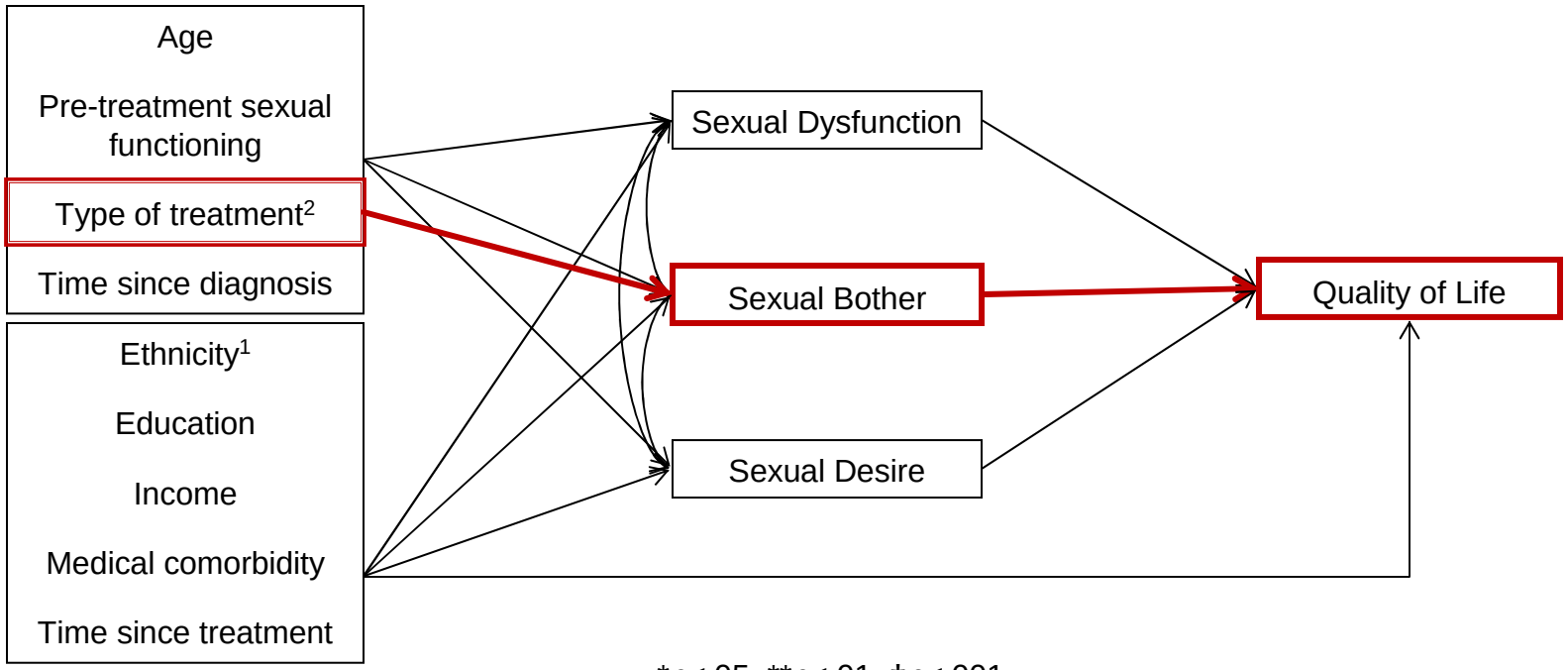
[1]Ethnicity included as two dummy coded variables with Non-Hispanic White as reference group; [2]Type of treatment dummy coded with RP as reference group

Indirect Effects

- Type of treatment → Sexual Bother → QOL
  - RP associated with more sexual bother and lower levels of QOL (indirect effect; β=.08, *p*<.01)



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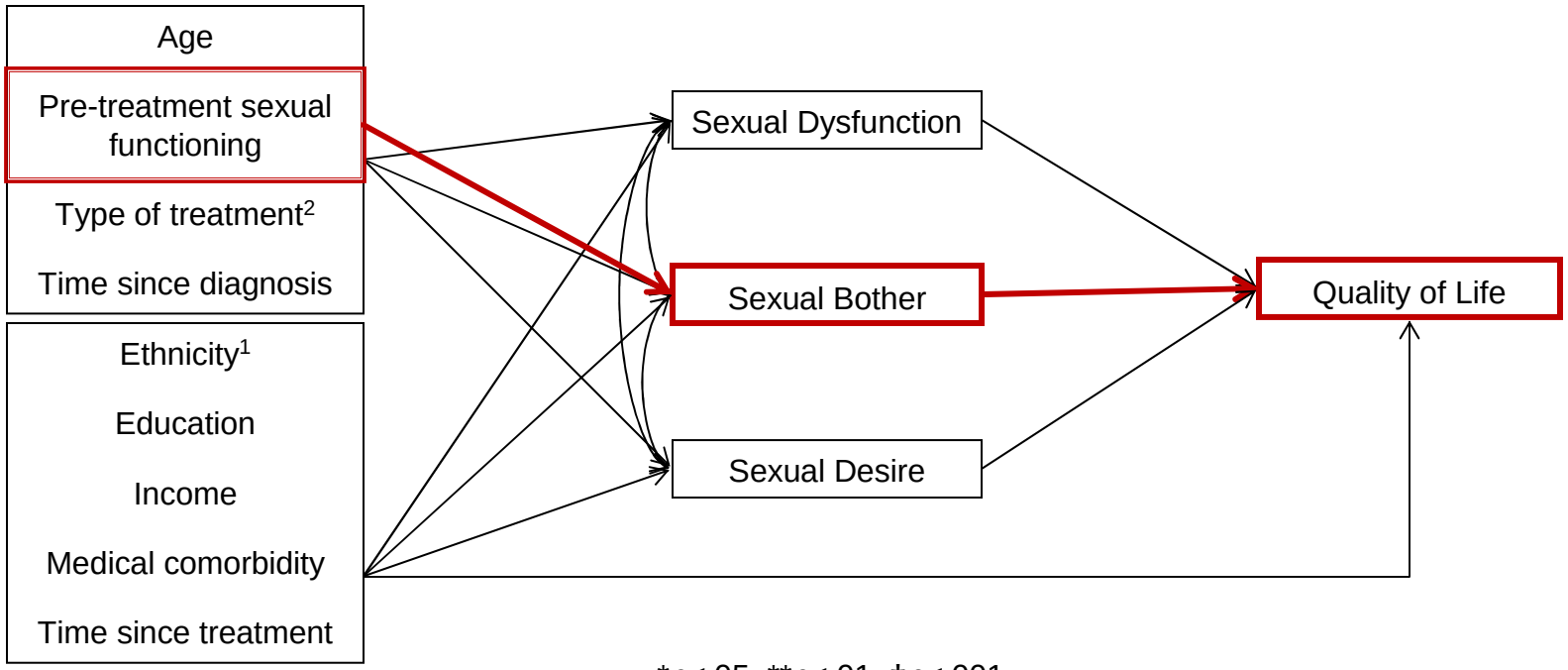
Indirect Effects

- Pre-treatment sexual function → Sexual Bother → QOL
  - Better pre-treatment sexual functioning associated with more sexual bother and lower levels of QOL (indirect effect; β=-.06, *p*<.01)



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Summary of Findings

- Although it is widely reported that sexual side effects have a negative impact on QOL, the impact of different domains of sexuality have rarely been considered

- Degree to which men perceive their sexual side effects as being a problem may be a more significant predictor of QOL than the level of physiologic impairment
  - Hispanic men
  - RP patients
  - High levels of pre-treatment sexual functioning

Implications

- The majority of men will never fully recover pre-treatment levels of sexual functioning
  - Even with the use of assistive aids and/or medical interventions
- Psychological processes related to sexual dysfunction may be more clinically relevant targets of intervention to ultimately improve QOL
  - Maladaptive cognitions related to perceived loss of masculinity
  - Performance anxiety associated with sexual intimacy

Limitations & Future Directions

- Cross-sectional design precludes causal inferences
  - Although sexual bother conceptualized as a mediating factor, time precedence could not be established
- Sexual desire and bother were each assessed using single items

Limitations & Future Directions

- Longitudinal relationships
- Psychosocial interventions among PC survivors
  - Target the effects of treatment on factors that relate to sexual desire and bother, in particular, and maladaptive perceptions of sexual dysfunction
  - Consider risk factors related to sexual bother and QOL
    - Ethnicity
    - Type of treatment
    - Pre-treatment level of sexual functioning

Contributors

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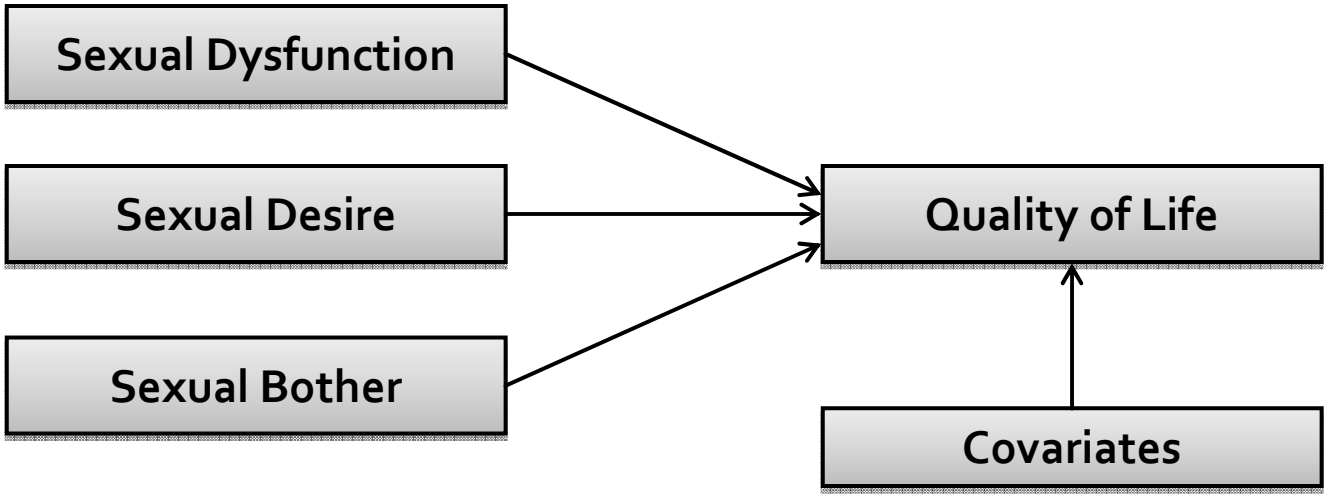
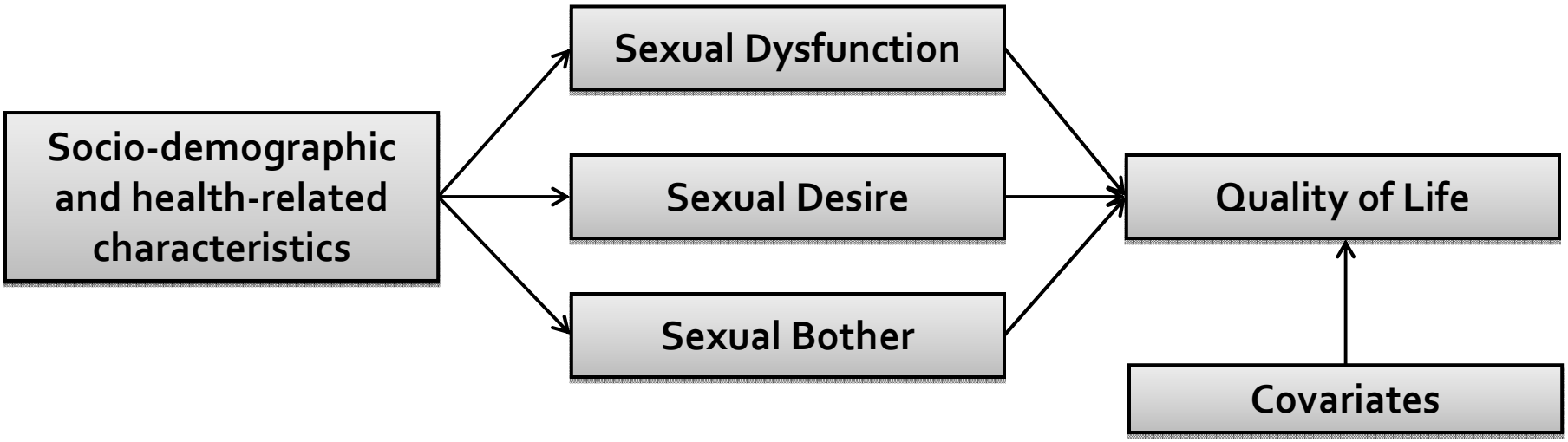
Present Study

- Evaluated the effects of sexual dysfunction, desire, and bother on QOL, controlling for relevant covariates



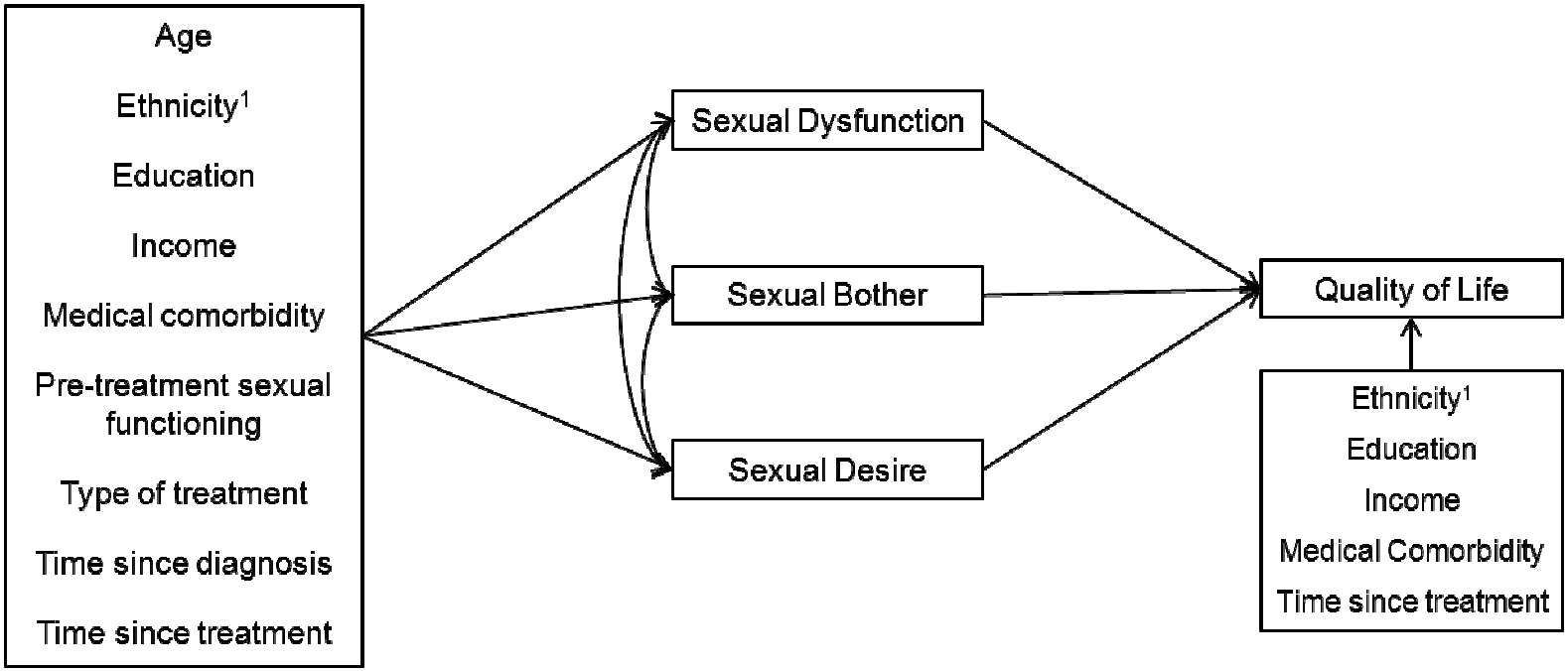
Present Study

- Determined whether baseline characteristics impacted sexual outcomes directly and whether there were subsequent indirect effects on general QOL



Statistical Analyses

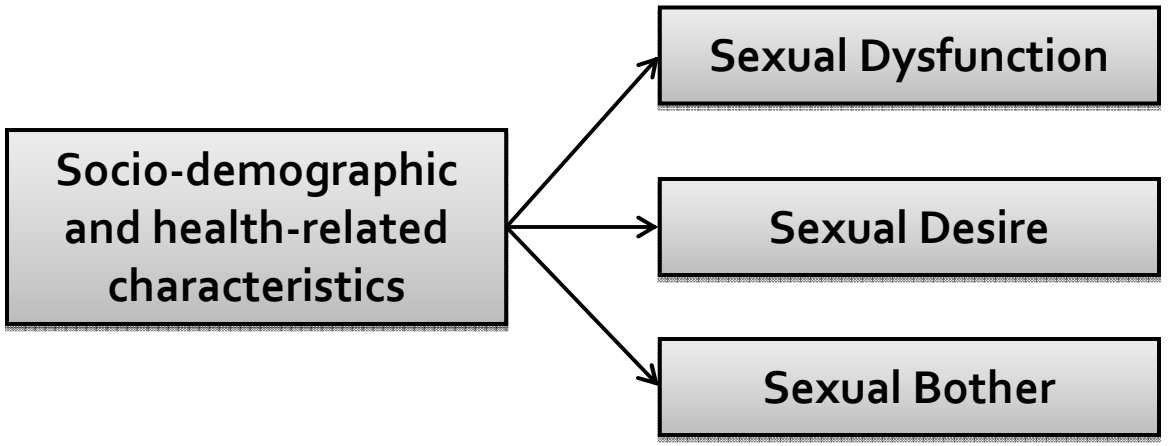
- Model evaluated the main effects of sexual dysfunction, desire, and bother on QOL, while considering the effects of relevant covariates



[1]Ethnicity included as two dummy coded variables; Non-Hispanic White reference group

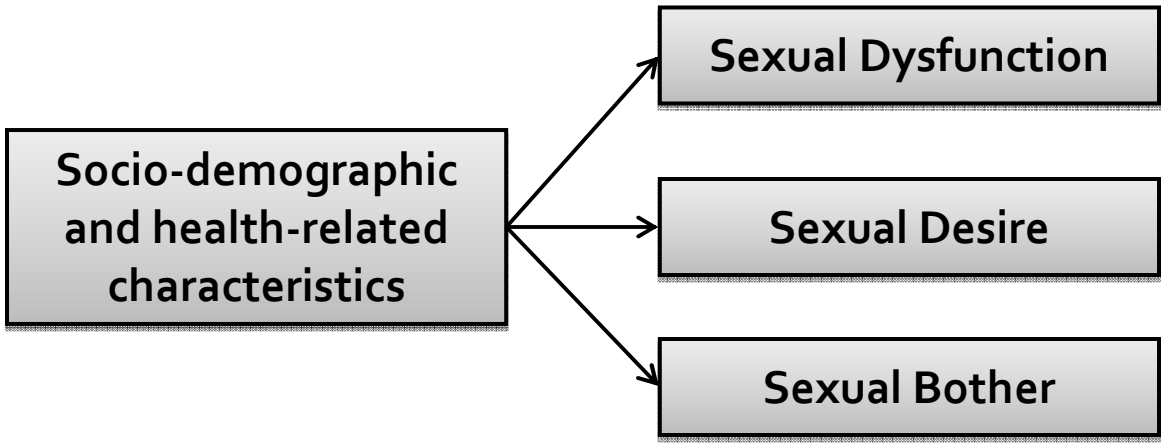
Dysfunction, Desire, and Bother

- Furthermore, unknown how socio-demographic and health-related characteristics relate to different aspects of sexuality



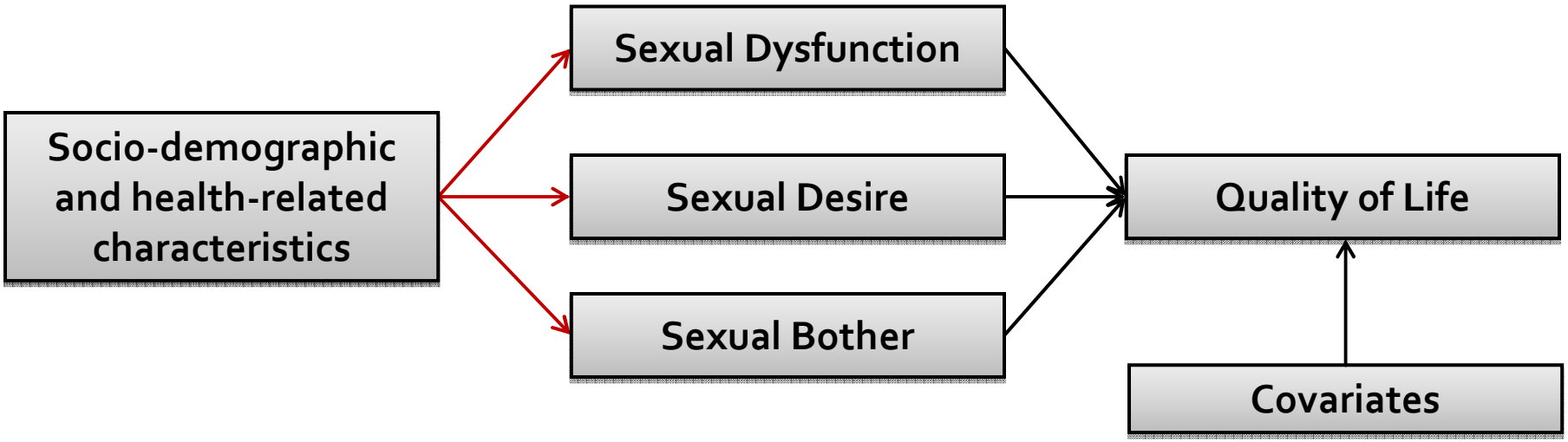
Present Study

- Determined whether baseline socio-demographic and health-related characteristics were differentially related to different domains of sexuality



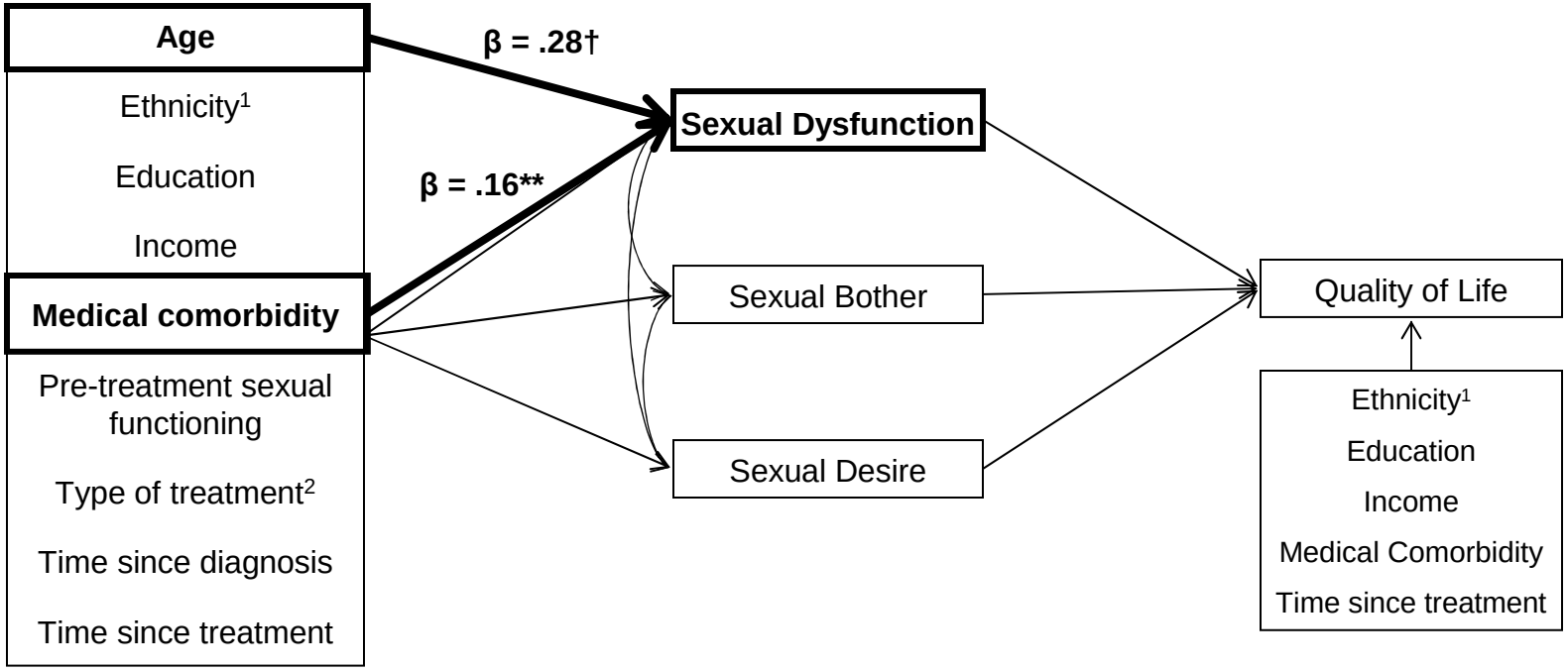
Present Study

- Direct effects of socio-demographic and health-related characteristics would vary across sexual outcomes



Direct Effects: Sexual Outcomes

- Older age and more medical comorbidities related to more sexual dysfunction



*p<.05; **p<.01; †p<.001

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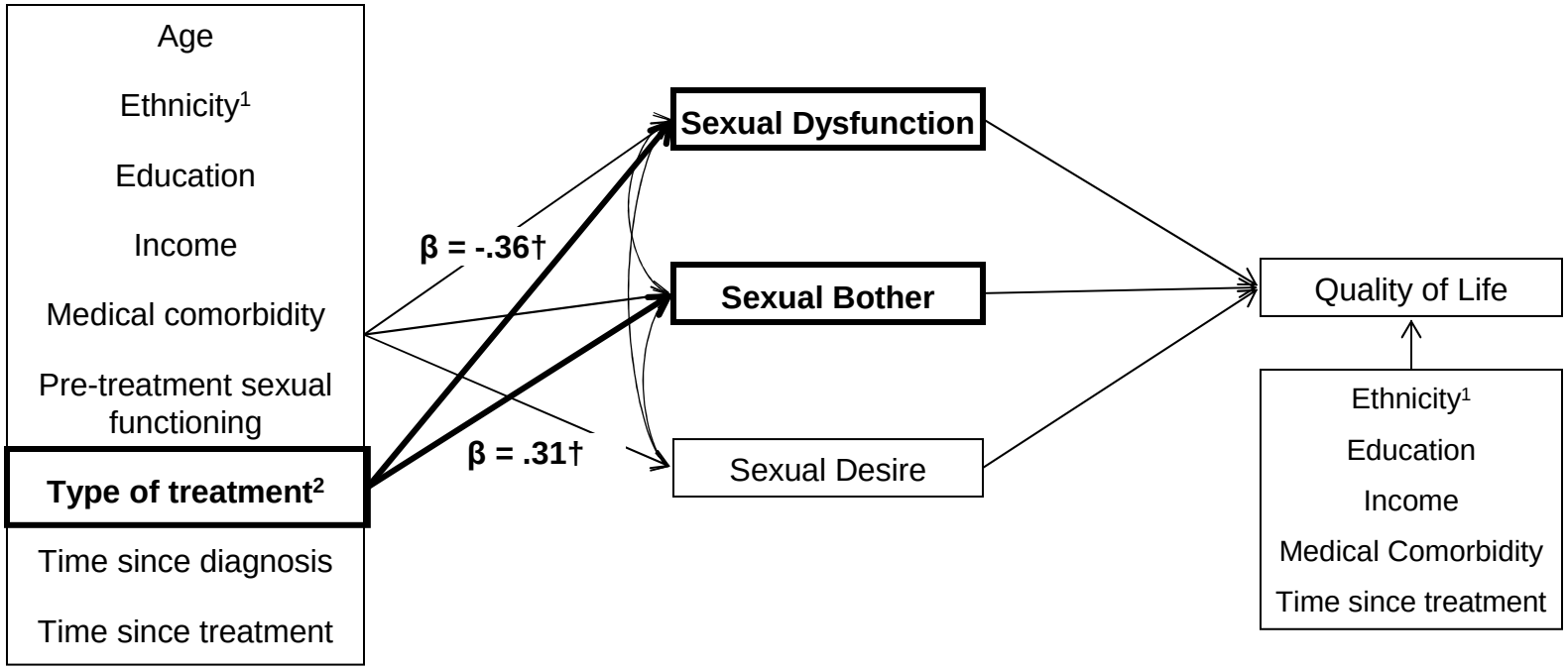
Direct Effects: Sexual Outcomes

- RP patients reported more sexual dysfunction and more bother related to sexual side effects than RT patients



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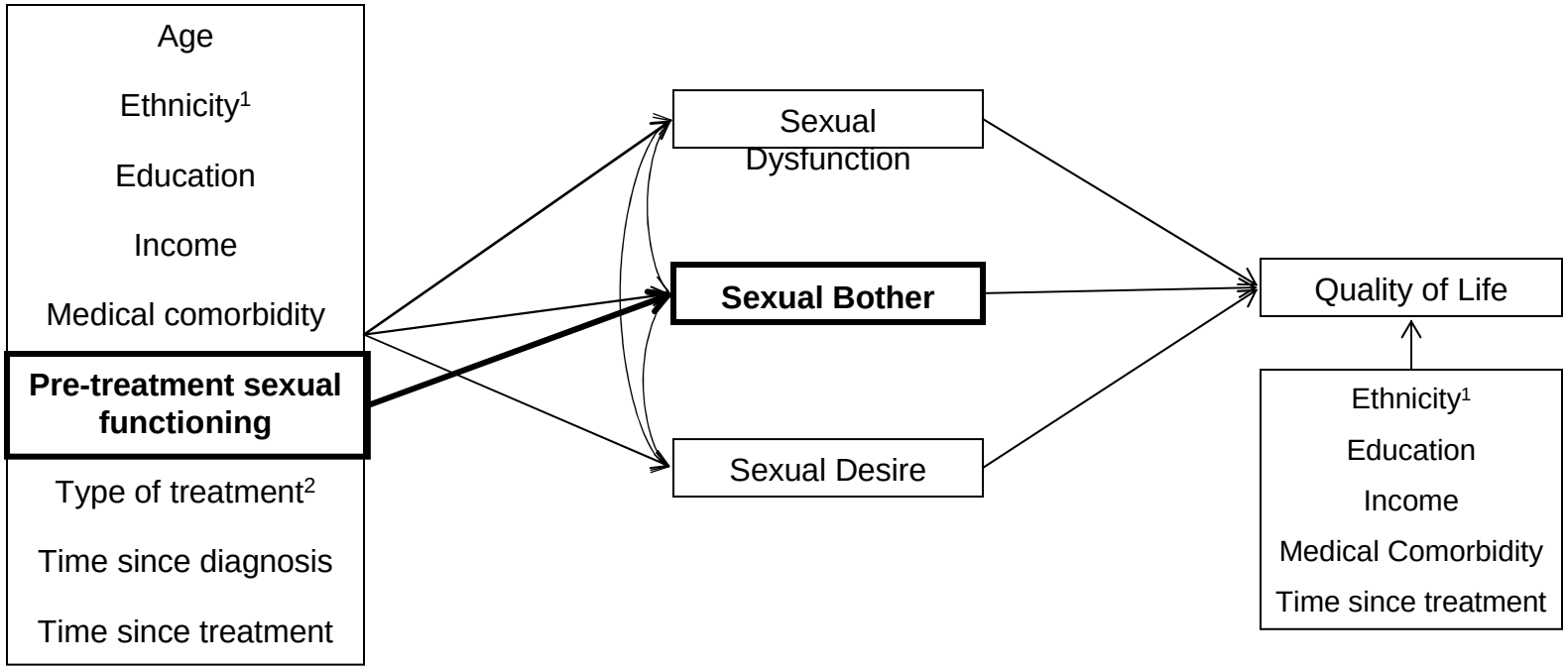
Direct Effects: Sexual Outcomes

- Pre-treatment sexual functioning related to sexual bother (β=.24, *p*<.01)



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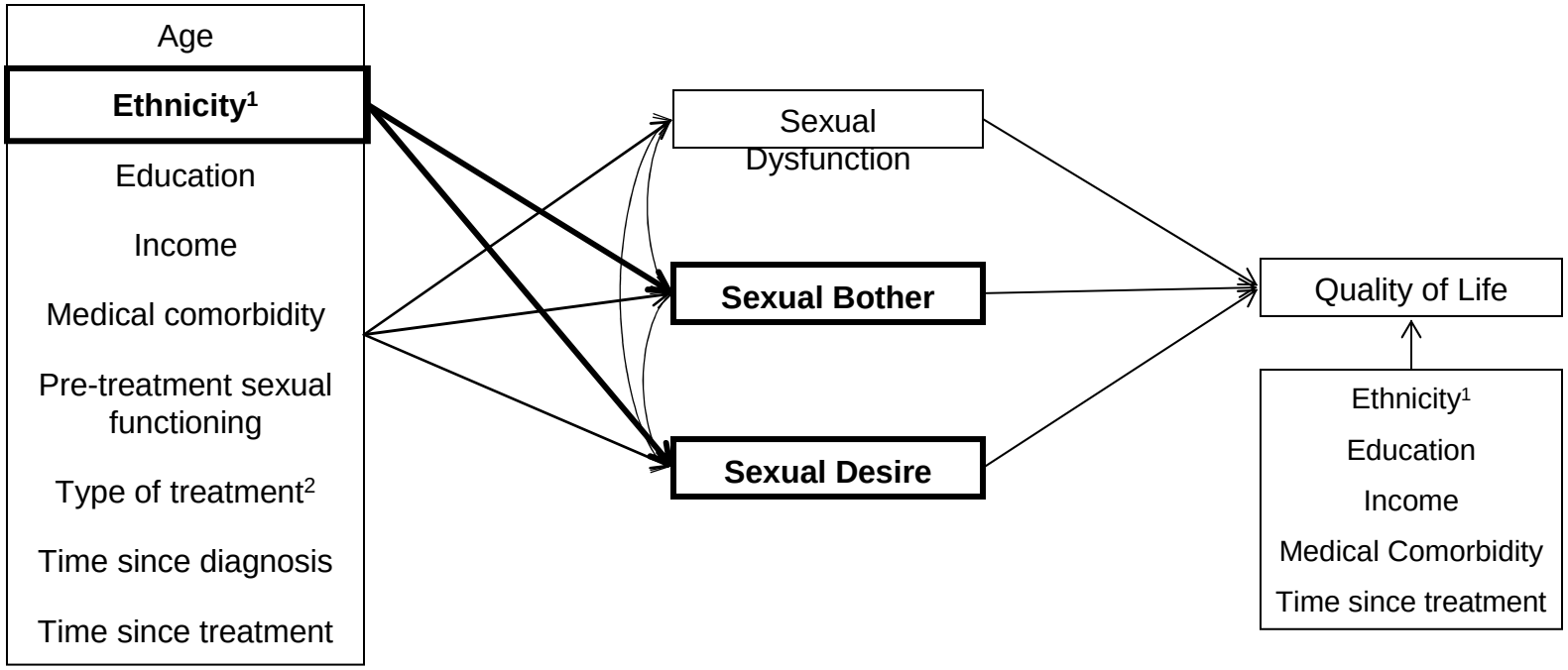
Direct Effects: Sexual Outcomes

- Hispanics reported lower levels of sexual desire (β=-.15, *p*<.05) and more sexual bother (β=.14, *p*<.05) compared to Non-Hispanic Whites



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