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Emotional Intimacy and Sexual Well-Being in Aging European Couples: A Cross-Cultural Mediation Analysis --Manuscript Draft--

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Abstract:	<p>Sexual health research tends to focus on problematic aspects of sexuality. This also applies to research on sexuality in older men and women, where attention has been primarily on the negative impact of aging. To contribute to the emerging interest in positive (successful) sexual aging, we aimed to: (1) further validate a recently developed 5-dimensional measure of sexual well-being (***) and (2) explore the structure of associations among emotional intimacy, frequency of sexual intercourse, and sexual well-being in older European couples. Using data from a 2016 community-based survey of 218 Norwegian, 207 Danish, 135 Belgian, and 117 Portuguese couples aged 60-75 years, we applied actor-partner interdependence structural modeling approach to confirm the validity of the sexual well-being measure in couples and explore a path analytic model in which the frequency of sexual intercourse was hypothesized to mediate the association between emotional intimacy and sexual well-being. The findings supported cross-cultural validity of the sexual well-being measure. Although the mediation model was confirmed only in Norwegian couples, we observed consistent and significant actor effects, with emotional intimacy and frequency of sexual intercourse predicting both male and female partners' sexual well-being. The few gender-specific partner effects need to be considered in the context of a more traditional gender role socialization at the time participants were growing up. Apart from being one of the few cross-cultural assessments of successful sexual aging, the findings of this study support the use of a new instrument in research on older adults' sexuality.</p>	

Abstract:

Sexual health research tends to focus on problematic aspects of sexuality. This also applies to research on sexuality in older men and women, where attention has been primarily on the negative impact of aging. To contribute to the emerging interest in positive (successful) sexual aging, we aimed to: (1) further validate a recently developed 5-dimensional measure of sexual well-being (*** blinded for review ***) and (2) explore the structure of associations among emotional intimacy, frequency of sexual intercourse, and sexual well-being in older European couples. Using data from a 2016 community-based survey of 218 Norwegian, 207 Danish, 135 Belgian, and 117 Portuguese couples aged 60-75 years, we applied actor-partner interdependence structural modeling approach to confirm the validity of the sexual well-being measure in couples and explore a path analytic model in which the frequency of sexual intercourse was hypothesized to mediate the association between emotional intimacy and sexual well-being. The findings supported cross-cultural validity of the sexual well-being measure. Although the mediation model was confirmed only in Norwegian couples, we observed consistent and significant actor effects, with emotional intimacy and frequency of sexual intercourse predicting both male and female partners' sexual well-being. The few gender-specific partner effects need to be considered in the context of a more traditional gender role socialization at the time participants were growing up. Apart from being one of the few cross-cultural assessments of successful sexual aging, the findings of this study support the use of a new instrument in research on older adults' sexuality.

Key Words: Aging, sexual well-being, intimacy, sexual activity, couples, APIM

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4 **Emotional Intimacy and Sexual Well-Being in Aging European Couples: A Cross-Cultural**
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6 **Mediation Analysis**
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11 INTRODUCTION
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14 Traditionally, sexual health research tends to focus on problematic aspects of sexuality
15 and sexual behavior, including sexual risk-taking and sexual problems and their treatment. This
16 seems to apply in spades to research on sexuality in older men and women, where attention has
17 primarily been on the negative impact of aging on sexual function (Syme et al. 2018). More
18 recently, however, there has been increased interest in positive aspects of sexuality, such as
19 sexual well-being (Graf and Patrick 2014), sexual wellness (Syme et al. 2018), and sexual
20 satisfaction (Neto 2012; Pascoal et al. 2014). Several definitions of sexual well-being have been
21 put forward, but most include both affective and cognitive dimensions related to the perceived
22 quality of an individual's sexuality, sexual life, and relationships (Rosen and Bachmann 2008;
23 Neto 2012; Graf and Patrick 2014).
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38 While the increased attention to positive aspects of sexuality is a welcome development,
39 the focus on sexual function and sexual activity that characterizes research on sexual well-being
40 may be problematic in the context of aging. For example, Rosen and Bachmann (2008)
41 operationalized sexual well-being in terms of sexual function, interest, and satisfaction. This
42 narrow focus on sexual function and activity is limiting for several reasons. First, while older
43 men and women are more likely than younger individuals to report sexual function problems
44 (Mitchell et al. 2013; Hendrickx et al. 2015; Peixoto and Nobre 2015), distress associated with
45 such problems may be low (Bancroft et al. 2003; Lee et al. 2016; Santos-Iglesias et al. 2016).
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47 Secondly, studies have suggested that for many older adults, physical closeness and intimacy
48 may be more important than sexual activity *per se* (Sandberg 2013; Müller et al. 2014; Lee et al.
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4 2016; Fileborn et al. 2017). Based on findings from a large study of midlife and older adults'
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6 definitions of sexual wellness, Symes et al. (2018) concluded that conceptualizing and measuring
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8 sexual wellness in this population requires a multidimensional approach that includes
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10 psychological, social, and attitudinal aspects in addition to sexual function and activity-related
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12 ones. Thus, the limited research that exists in this area highlights the importance of
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14 conceptualizing sexual well-being differently for older adults.
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19 It should be noted that most measures of sexual well-being have been validated in
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21 individuals with sexual problems (e.g., Costa et al. 2003; Abraham et al. 2008; Rosen et al. 2009)
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23 and many were developed using only samples of female participants, often premenopausal
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25 women (Öberg et al. 2002; De Visser et al. 2007; Rosen et al. 2009; Stephenson et al. 2010;
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27 Muise et al. 2010; Bancroft et al. 2011; Anderson et al. 2016). As yet, no existing measure of
28
29 sexual well-being has been validated in older adults.
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33 Using a population-based sample of older individuals (60+) from four European countries
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35 (Authors, blinded for review), we have developed and validated a multidimensional measure of
36
37 sexual well-being in older adults. The measure includes five dimensions: physical intimacy,
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39 emotional closeness during sex, sexual compatibility, sexual satisfaction, and distress related to
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41 sexual function problems. In support of its convergent validity, we found that the well-being
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43 measure was significantly and positively associated with emotional intimacy and frequency of
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45 sexual intercourse, and negatively with masturbation (Authors, blinded for review). In the current
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47 study, we attempted to further validate the new measure and explore structural associations
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49 among emotional intimacy, the frequency of sexual activity, and sexual well-being in a multi-
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51 country sample of older couples.
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57 **Emotional Intimacy and Sexuality in Aging Men and Women**

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4 A number of studies have highlighted the importance of emotional intimacy for aging
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6 individuals' sexuality (Laumann et al. 2006; Sandberg 2013; Müller et al. 2014; Fileborn et al.
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8 2017). In a longitudinal population-based study of aging German men and women, participants in
9
10 the highest age group (74 years), prioritized “affection” over sexual activity. In the Australian
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12 Sex, Age, and Me study (Fileborn et al. 2017), qualitative interviews with individuals aged 60
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14 and older revealed that both men and women considered intimacy and bonding a central
15
16 component of their sexual lives.
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20 21 **Aging and the Frequency of Sexual Activity** 22

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24 While not all older adults are engaging in partnered sexual activity (in many cases
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26 because they do not have a partner; (Træen et al. 2017), many mid- and later life adults do remain
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28 sexually active (Lindau et al. 2007; Waite et al. 2009; DeLamater 2012; Wang et al. 2015).
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30 Research indicates that for the majority of older adults, sex remains important to their quality of
31
32 life and is considered a central element of a satisfying relationship (Fisher et al. 2010).
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36 In a review of the literature on factors associated with sexual well-being in older adults,
37
38 Kleinstäuber (2017) noted that the links between sexual activity and sexual wellbeing are variable
39
40 and complex. Different operationalizations of sexual activity likely contribute to this situation. In
41
42 another review, involving 57 studies on sexual activity in adults at least 60 years old, Bell et al.
43
44 (2017) noted an “overwhelming focus on intercourse” (p. 21). However, older adults may focus
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46 more on other types of sexual behavior (Lindau et al. 2007; Fisher et al. 2010; Trudel et al. 2014)
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48 which suggests that older couples' sexual activity is underestimated when it is evaluated solely
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50 by measuring the frequency of sexual intercourse.
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53 54 **Emotional Intimacy and Sexual Activity** 55

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57 Evidence supporting the importance of closeness, affection, and emotional intimacy
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59 during sexual activity in older adults mainly—although not exclusively (see Heiman et al.
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4 2011)—comes from qualitative studies. In an interview study with men and women aged 60-82
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6 years, a factor labelled “depth” contributed to “optimal” sexual experiences (Ménard et al. 2015).
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8 Depth referred to “the connection, the intimacy, the love, the caring and the levels of trust, safety
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10 and communication that they felt with their partners” (Ménard et al. 2015 p. 87). While the
11
12 importance of emotional intimacy during sex has been most often studied in women, several
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14 recent studies also highlight the importance of emotional intimacy for older men’s sexuality.
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16 These studies challenge the idea that intimacy for men is somehow arduous or unimportant and
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18 that male sexuality is firmly tied to the ability to perform during intercourse and to reach orgasm
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20 (Sandberg 2013). For example, Fileborn et al. (2017) found that Australian men aged 60+, when
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22 asked about the importance of sex, frequently indicated that sexual activity plays a vital role in
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24 emotional bonding and maintaining intimacy with a partner. Partnered sexual activity was
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26 described as offering higher levels of intimacy and closeness than platonic relationships could
27
28 provide. In interviews, Swedish heterosexual men aged 67–87 years described intimacy as
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30 something “more or other than sexual intercourse,” including touching, feelings of love and
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32 emotional closeness in a committed relationship (Sandberg 2013). Older men also recounted how
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34 the importance of intimacy had increased with age. While their sexual activity at younger ages
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36 used to be much more focused on penetrative sex, at the time of the interview it was primarily
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38 experienced through sensual touch and intimacy (Sandberg 2013).
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48 Studies involving mixed-age samples also demonstrated the importance of emotional
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50 intimacy and closeness during sex. In a U.S. study of women aged 20-65 years, one of the
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52 strongest (negative) predictors of distress about their sexual relationship was how emotionally
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54 close women felt to their partner during sexual activity (Bancroft et al. 2003). Murray et al.
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56 (2017) interviewed men aged 30-65 years in long-term relationships, who discussed how intimate
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58 communication with their partner sometimes “sparked” closeness and could lead to sexual
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4 activity. In a focus group study of men aged 18-70 years, some participants described how an
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6 emotional connection with their partner could positively impact, and sometimes be key to, the
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8 experience of sexual arousal during partnered sex (Janssen et al. 2008).
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10 11 **Dyadic Approach**

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14 In recent years, researchers in the area of romantic relationships have started to apply
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16 dyadic approaches (e.g., Muise et al. 2018). In contrast to traditional individual-based
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18 approaches, dyadic approaches use the couple as the unit of analysis and allow for a more
19
20 realistic assessment of (interdependent) perceptions, beliefs and behaviors, including those
21
22 relevant to aging men's and women's sexual well-being. For example, Bell et al. (2017) found
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24 decreased sexual activity in individuals over 60 years of age to be strongly associated with the
25
26 partner's sexual and other physical health problems. These findings underscore the importance of
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28 looking beyond individual-level analyses when trying to improve our understanding of sexual
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30 well-being in older adults. While the use of dyadic analytic approaches is now common in
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32 relationship research, it is largely absent from the assessment of sexuality and sexual well-being
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34 among older men and women.
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40 41 **Current Study**

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43 To the best of our knowledge this is the first cross-cultural study of aging couples'
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45 sexuality that uses a dyadic approach. The study had two aims: (1) to further validate a 5-
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47 dimensional measure of sexual well-being that was recently developed in a large-scale sample of
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49 participants from four European countries (***) blinded for review (***) and (2) to explore the
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51 structure of associations among older couples' emotional intimacy, frequency of sexual
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53 intercourse, and sexual well-being. Based on the literature on the associations between emotional
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55 closeness and sexual activity and on the advantages of using a dyadic approach (Muise et al.
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60 2018), we tested a model in which the frequency of sexual intercourse was hypothesized to
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4 mediate the association between the couple's emotional intimacy and sexual well-being. Taking
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6 into account that the central role of sexual intercourse in heterosexual relationships has been
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8 shown to wane with aging, the model explored whether sexual activity remains a psychosocial
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10 behavioral factor underlying the relationship between emotional intimacy and sexual well-being
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12 in older couples. This exploration of the key association between emotional intimacy and sexual
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14 well-being in couples also constitutes an additional validation of the new measure of sexual well-
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16 being (***) blinded for review (***)).

21 METHOD

23 **Participants and Procedures**

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26 Data for this study was collected as part of a survey on sexuality among aging men and
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28 women that was carried out in four European countries (Norway, Denmark, Belgium and
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30 Portugal) in 2016. The survey used national probability-based samples of men and women aged
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32 60-75 years (***) blinded for review (***)). The total sample size was 1,270 in Norway, 1,045 in
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34 Denmark, 990 in Belgium, and 509 in Portugal, with participation rates ranging from 68.2% in
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36 Norway to 25.5% in Portugal. In this study, we only used the data from a subsample of couples,
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38 who took part in the study in parallel with individual participants. This subsample included 218
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40 couples in Norway, 207 in Denmark, 135 in Belgium, and in 117 Portugal.
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46 The average age of the participants ranged from 67.7 years (SD = 3.87) in Denmark to
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48 65.6 (SD = 4.18) in Portugal. Duration of the relationship/marriage was, similarly, the longest
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50 among Danish (M = 40.58, SD = 12.77) and the shortest among Portuguese partners (M = 30.30,
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52 SD = 17.42). We observed substantial educational differences between countries (see Table 1).
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54 Couples in Norway had the highest proportion of college educated (55.1%) and the lowest
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56 proportion of only primary-school educated partners (9.9%). In contrast, among Portuguese
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58 couples, only 15.8% of partners reported tertiary education and 37.6% primary education.
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Questionnaire and Measures

After they were contacted by phone, prospective participants were sent a questionnaire through the mail (developed in English and translated into local languages by members of an international research team). Couples were asked to complete the questionnaire separately.

Following our earlier paper (***) blinded for review (***) , *sexual well-being* was operationalized as a latent construct consisting of the following five dimensions. (1) Sexual satisfaction was measured by two strongly related items ($r = .68-.80$), with answers anchored using a 5-point Likert-like scale: *Thinking about your sex life in the last year, how satisfied are you with your sexual life?* and *How satisfied are you with the current level of sexual activity in your life, in a general way?* The composite variable had satisfactory reliability (Cronbach's α ranged from .77 to .81). (2) The frequency of cuddling and caressing was assessed by two items ($r = .46-.56$): *Over the past 4 weeks, how often have you been sexually touched and caressed by your partner?* (answers ranged from 1 = not at all to 5 = almost daily) and *My partner and I kiss and cuddle each other...* (1 = seldom, 2 = often) developed in a study that focused on sexual satisfaction among midlife and older couples (Heiman et al. 2011). The two items were multiplied, so that higher scores point to more frequent cuddling and caressing. (3) Sexual intimacy was indicated by the following question: *I feel emotionally close to my partner when we have sex together*. Responses (1 = always to 5 = hardly ever) were reverse-coded so that higher scores denote higher sexual intimacy. (4) Perceived sexual compatibility was assessed using two strongly correlated items ($r = .62-.81$) from the NATSAL-SF tool (Jones et al. 2015): *My partner and I share the same level of interest in having sex* and *My partner and I share the same sexual likes and dislikes*. Measured on a Likert-type scale, the items were summed, with higher scores indicating higher sexual compatibility. Finally, (5) distress over sexual function was indicated by a modified version of the NATSAL-SF (Jones et al. 2015). For each of eight listed sexual

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4 difficulties, participants were asked about the associated distress (from 1 = no distress to 4 =
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6 severe distress). Distress scores were reverse-coded and summed into a composite indicator.
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8 Higher scale scores point to lower levels of stress over one's sexual function.
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11 *Emotional intimacy* was assessed using the 5-item (e.g., *I can share my deepest thoughts*
12 *and feelings with this person* and *This person cares deeply for me*) Emotional Intimacy Scale
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14 (Sinclair and Dowdy 2005), which had a high reliability in all four countries (Cronbach's $\alpha = .90-$
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19 .91). Scale scores were reverse-coded, so that higher scores indicate higher intimacy.
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21 *The frequency of sexual intercourse* in the past month was assessed by a single-item
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23 indicator measured on a 7-point scale ranging from 1 = none to 7 = more than once a day.
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26 **Statistical Analysis**

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28 Dyadic data are characterized by non-independence of partners' responses, which, if not
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30 taken into account, results in biased estimates (i.e., standard errors are underestimated). A
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32 commonly used approach to dyadic analysis is the Actor-Partner Independence Model (APIM;
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34 Kenny et al. 2006), which can be implemented using various statistical techniques. In the current
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36 study, structural equation APIM enabled simultaneous estimation of mediated actor and partner
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38 effects of emotional intimacy on sexual well-being.
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43 Using confirmatory factor analysis (CFA), we first re-assessed the 5-dimensional model
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45 of sexual well-being developed in the non-dyadic sample (blinded for anonymity). Model fit was
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47 evaluated by the comparative fit index (CFI) values $\geq .90$ (acceptable fit) or $\geq .95$ (excellent fit)
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49 and the RMSEA index of parsimony values $\leq .05$ (excellent fit) or $\leq .08$ (acceptable fit) (Byrne
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51 2010). Next, we tested the model's measurement invariance across countries. Fit of the multi-
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53 group baseline or unconstrained model was compared to progressively more constrained models
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55 representing metric and scalar invariance (van de Schoot et al. 2012). CFI difference test (Δ CFI),
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57 which is insensitive to sample size, was used for model comparisons; values $\leq .01$ indicated
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4 indistinguishable fit (Cheung and Rensvold 2002). At least partial scalar invariance was required
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6 to justify between-countries comparisons (Bryne et al. 1998). In the final step, the full APIM
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8 mediation model was explored separately for each country. Following Shrout and Bolger (2002),
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10 mediation was assessed by inspecting bootstrapped 95% confidence intervals around indirect
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12 effects. Mediation is significant if lower and upper bounds are either below or above zero.
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15 All analyses were carried out using the IBM AMOS 22 statistical software package.
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17 Except for mediation testing (cases with missing values were omitted to enable bootstrapping
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19 with 1000 re-samples), missing information was estimated using the model-based full
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21 information maximum likelihood (FIML) approach (Graham 2012; Arbuckle 2013).
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24 RESULTS

25 Sociodemographic characteristics of the sample are presented in Table 1. Men were older
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27 than their female partners in all four countries. More men were college or university educated
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29 than their female partners in Norway and Belgium, but not in Denmark and Portugal, where the
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31 opposite was found. Religiosity was the highest in the Portuguese sample, with women reporting
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33 somewhat higher frequency of attending religious services. Unlike couples from the other three
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35 countries, for which a majority of participants resided in villages or small towns, the majority of
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37 Portuguese couples were living the largest (capital) city.
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47 TABLE 1 ABOUT HERE
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52 **Successful Well-Being Model**

53 Figure 1 shows the model of well-being, developed in our earlier paper (blinded for
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55 anonymity), that was explored here using dyadic data. The findings of APIM-based CFA
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57 suggested that the model fitted the data well ($\chi^2_{(29)} = 92.71$, CFI = .959, RMSEA = .057). To test
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4 for measurement invariance, the baseline (unconstrained) multi-group model ($\chi^2_{(116)} = 195.53$,
5 CFI = .951, RMSEA = .032), with countries as groups, was compared with progressively
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7 constrained models that reflected metric and scalar invariance. After factor loadings for distress
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9 about sexual function were allowed to vary by country, partial metric invariance was attained
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11 ($\chi^2_{(140)} = 229.05$, CFI = .945, RMSEA = .032; cf. Table 2), which confirmed the model's
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13 conceptual validity for dyads in all four countries. Given that the levels (i.e., intercepts) of
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15 underlying items were country-specific, direct cross-cultural comparisons of the associations
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17 among key constructs were not warranted.
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26 FIGURE 1 AND TABLE 2 ABOUT HERE
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30 31 **Emotional Intimacy, Frequency of Sexual Intercourse, and Sexual Well-Being**

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33 The structure of associations among the key constructs was explored using path analytic
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35 APIM with two manifest variables (emotional intimacy and frequency of sexual intercourse) and
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37 one latent variable (sexual well-being). Using this model, we tested whether the frequency of
38
39 sexual intercourse mediated the association between partners' emotional intimacy and their
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41 sexual well-being. After the initial model failed to reach acceptable fit ($\chi^2_{(65)} = 389.61$, CFI =
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43 .898, RMSEA = .086), modification indices were inspected for suggestions about improving fit.
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46 Allowing errors of sexual satisfaction and distress over sexual function items to covary (it is
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48 highly plausible that distress caused by a sexual problem would directly affect sexual
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50 satisfaction) improved fit: $\chi^2_{(63)} = 322.00$, CFI = .919, RMSEA = .078. An additional model
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52 respecification entailed trimming four non-significant paths: (1) female partner's emotional
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54 intimacy to male partner sexual well-being, (2) female partner's frequency of sex to male
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56 partner's well-being, (3) female partner's intimacy to male partner's frequency of sex, and (4)
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4 male partner's frequency of sex to female partner's sexual well-being. Compared to the full
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6 model, this more parsimonious model (see Figure 2) fitted the data equally well ($\Delta\text{CFI} = .002$).
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8 The trimmed model explained 72-74% of variance in Norwegian, 69-70% in Danish, 75-77% in
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10 Belgian, and 58-63% in Portuguese couples' well-being.
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FIGURE 2 ABOUT HERE

Culture-Specific Associations and Indirect Effects

The final, trimmed model was estimated separately for each country to explore actor-partner structural associations and the mediating role of the frequency of sexual intercourse. The results are presented in Table 3. For the Norwegian couples, all actor and male partner effects were significant (the association between male partner's emotional intimacy and the frequency of sex reported by his female partner approached significance; $p < .06$). In addition, coital frequency partially mediated the associations between male partner's intimacy and his—as well as his female partner's—sexual well-being.

Effects for Danish couples were similar, with one important exception. Coital frequency did not mediate the association between male partner's emotional intimacy and male or female partner's sexual well-being. Belgian couples differed from both Norwegian and Danish ones in that the levels of female partners' emotional intimacy did not predict their reported coital frequency. Similar to Norwegian couples, the association between male partner's intimacy and the frequency of sex reported by the female partner approached significance in the Belgian sample ($p < .06$). Consequently, coital frequency significantly mediated the association between male partner's emotional intimacy and female partner's sexual well-being.

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4 We found no significant partner effects for Portuguese couples. Actor effects, however,
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6 were significant for both male and female partners. The reported frequency of sexual intercourse
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8 significantly mediated the relationship between emotional intimacy and sexual well-being among
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10 male but not female partners.
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16 TABLE 3 ABOUT HERE
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21 DISCUSSION

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23 To fill a gap in research on aging couples' sexuality, this cross-cultural study used a
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25 dyadic approach to investigate the connections among emotional intimacy, frequency of sexual
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27 intercourse, and sexual well-being. The study had two specific aims. First, we wished to further
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29 validate the 5-dimensional model of aging individuals' sexual well-being (***) blinded for review
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31 (***) using dyadic data. Secondly, we aimed to explore if the frequency of sexual intercourse
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33 mediates the association between aging couples' emotional intimacy and their sexual well-being.
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35 Unlike intimacy, the role of sexual frequency—in particular of sexual intercourse—has been
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37 unclear, if not ambiguous, in the context of aging individuals' sexuality (Sandberg 2013; Müller
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39 et al. 2014; Lee et al. 2016; Fileborn et al. 2017).
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45 The findings of this study provided additional support for the validity of the sexual well-
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47 being model, as applied to aging couples, in all four countries. Although the overall structure of
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49 the model did not differ among countries, differences were found in mean levels of various facets
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51 of sexual well-being, which suggested some culture-specific influences on aging couples' sexual
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53 well-being. Interestingly, distress about one or more sexual difficulties was consistently higher
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55 among older women than men in the four countries (not presented in tables), which is consistent
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57 with findings in younger samples (Fugl-Meyer and Fugl-Meyer 1999; Hendrickx et al. 2014). For
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4 examples, in a sample of 35,132 Flemish heterosexual men and women (mean age was 39 years),
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6 Hendrickx et al. (2014) found that 20% of women and 11% of men reported at least one
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8 distressful sexual difficulty.
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11 Taking into account its robust cross-cultural performance, our 5-dimensional model of
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13 sexual well-being may be a useful tool in clinical and non-clinical studies of older individuals'
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15 and couples' sexuality and sexual health. If our composite indicator of distress over sexual
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17 function (the original distress items were sexual difficulty-specific) is replaced with a general
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19 single-item indicator, which is the standard practice in large-scale sexological studies (e.g., Jones
20
21 et al. 2015), the sexual well-being measure would be represented by only eight items in total,
22
23 which most surveys—including those that do not focus on sexual aspects of aging—would not
24
25 have a problem accommodating. Apart from being practical to use, this newly-developed sexual
26
27 well-being measure might provide insight into components of and processes that underlie sexual
28
29 well-being in older individuals and couples, including in longitudinal studies. In clinical settings,
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31 our measure might assist in identifying and addressing particular individual emotional and erotic
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33 needs, as well as shortcomings in the couple's habitual sexual "choreography".
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41 Regarding the second study aim, we found that the reported frequency of sexual
42
43 intercourse mediated the association between emotional intimacy and sexual well-being, but only
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45 in couples from Norway, the most gender-egalitarian country in the sample. In regard to the
46
47 overall structure of relationships among emotional intimacy, sexual activity and sexual well-
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49 being, country-by-country structural equation APIM analyses pointed to a number of consistent
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51 and significant actor effects. For example, intimacy and frequency of sexual intercourse predicted
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53 both male and female partners' sexual well-being. Partner effects were notably weaker and only
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55 marginally significant. An exception was the association between male partners' intimacy and
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4 female partners' sexual well-being, which was observed in three of the four countries (the
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6 relationship was non-significant in Portugal, the only Southern European country).
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9 Marked gender-specific differences in partner effects (i.e., the absence of female to male
10 partner effects) found in this study need to be considered in the context of a more traditional
11 gender role socialization and social regulation of sexuality which was common at the time our
12 participants were emerging adults (see Francoeur and Noonan 2004; Herzog 2011). When
13
14 thinking about more traditional gender roles, which regard “emotion work” as mostly women’s
15 responsibility (men are, instead, expected to control their feelings; (Brody and Hall 2008; Fahs
16 and Swank 2016), it may be surprising that men’s but not women’s reports of intimacy were
17 predictive of the other partner’s sexual well-being. However, this is not incompatible with
18 traditional gender roles. Male emotional intimacy may be valued highly precisely because, at
19 least in its expression, it is less frequent than female emotional intimacy. Also, partner variables
20 (including intimacy) seem more systematically related to female than male sexuality, even on a
21 daily basis (see Dewitte and Mayer 2018), although it is unclear to what extent this applies to
22 different age groups.
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40 We also explored whether the effects of emotional intimacy on sexual well-being might
41 be mediated by the frequency of sexual intercourse. We recognize the possibility that emotional
42 intimacy could mediate the association between sexual activity and sexual well-being. However,
43 given that the tendency to have sex for physical and utilitarian motives seems to decrease with
44 increasing age (e.g., Wyverkens et al. 2018), we were more interested in exploring models that
45 take emotional intimacy as a starting point. Moreover, although the degree of intimacy
46 experienced during sexual activity can be expected to vary (within and between individuals) and
47 this in itself could influence sexual well-being, we measured emotional intimacy at a more global
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4 level. For these reasons, we considered it both more relevant and more interesting to explore the
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6 degree to which it might influence sexual activity and, indirectly, sexual well-being.
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9 This mediation model was supported in male partners from Norway and Portugal, as well
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11 as in female partners from Norway. The indirect association between Norwegian men's
12
13 emotional intimacy and sexual well-being was about twice as strong as the one observed among
14
15 their female partners. These findings suggest that emotional intimacy may play a more important
16
17 role for older coupled men's than women's sexual well-being. It should also be noted that partner
18
19 indirect effects were significant only in female Norwegian participants. Their male partner's
20
21 emotional intimacy seemed to contribute to their sexual well-being through more frequent sexual
22
23 intercourse. Whether the fact that this indirect effect was found only in Norway can be attributed
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25 to a high level of gender equality achieved in this country or to some other culture-specific
26
27 characteristics that were not assessed in this study is unclear.
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32 33 **Study Limitations**

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35 The cross-sectional nature of our study does not warrant any discussion about causal
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37 links. The direction of paths in the structural mediation model was assumed, based on our
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39 conceptual framework, and not empirically determined. The relationship between the constructs
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41 might go in either direction, including a number of likely bi-directional ties. Our study
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43 recruitment presents another limitation. Most likely, sexually active couples, as well as those with
44
45 more liberal views about sexuality, were oversampled at the expense of sexually inactive and
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47 more traditional (possibly more religious) couples. This strictly limits the generalizability of our
48
49 findings. Despite the robustness of APIM estimations, the country samples (especially the
50
51 Portuguese) were underpowered when associations were small. This limitation needs to
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53 be considered particularly when partner effects are addressed. Finally, although the structure and
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55 levels of sexual well-being differ in heterosexual and non-heterosexual couples, the fact that only
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4 one person in our overall sample identified as gay or lesbian, while three others reported that they
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6 were bisexual (an additional 17 checked the category “other”) precluded any meaningful
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8 statistical treatment of sexual orientation.
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10 11 CONCLUSIONS 12

13
14 This dyadic study aimed to contribute to an emerging interest in positive aspects of sexual
15
16 aging. Apart from providing additional cross-cultural validation of a newly-developed measure of
17
18 sexual well-being, which suggested some unmeasured culture-specific influences, we observed
19
20 consistent associations among emotional intimacy, frequency of sexual intercourse, and sexual
21
22 well-being in both men and women. In contrast to these actor effects, partner effects, were
23
24 inconsistent and gender-specific (i.e., the absence of female-to-male partner influence), pointing
25
26 to a likely role of more traditional gender role socialization that may have been the norm at the
27
28 time our participants were growing up. As emphasized in a recent review of research on sexuality
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30 in older age (Træen et al., 2017b), the field may greatly benefit from comparative research into
31
32 the role of sociocultural norms and beliefs on sexual functioning and sexual well-being of older
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34 people.
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Figure 1 – The Model of Couple’s Sexual Well-Being

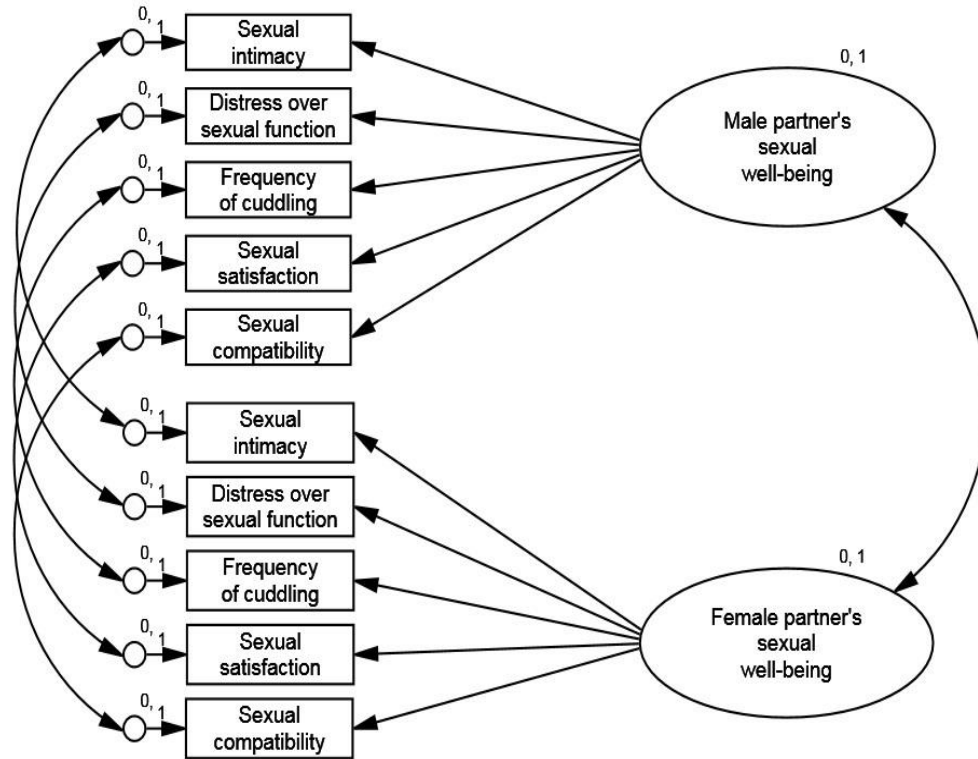
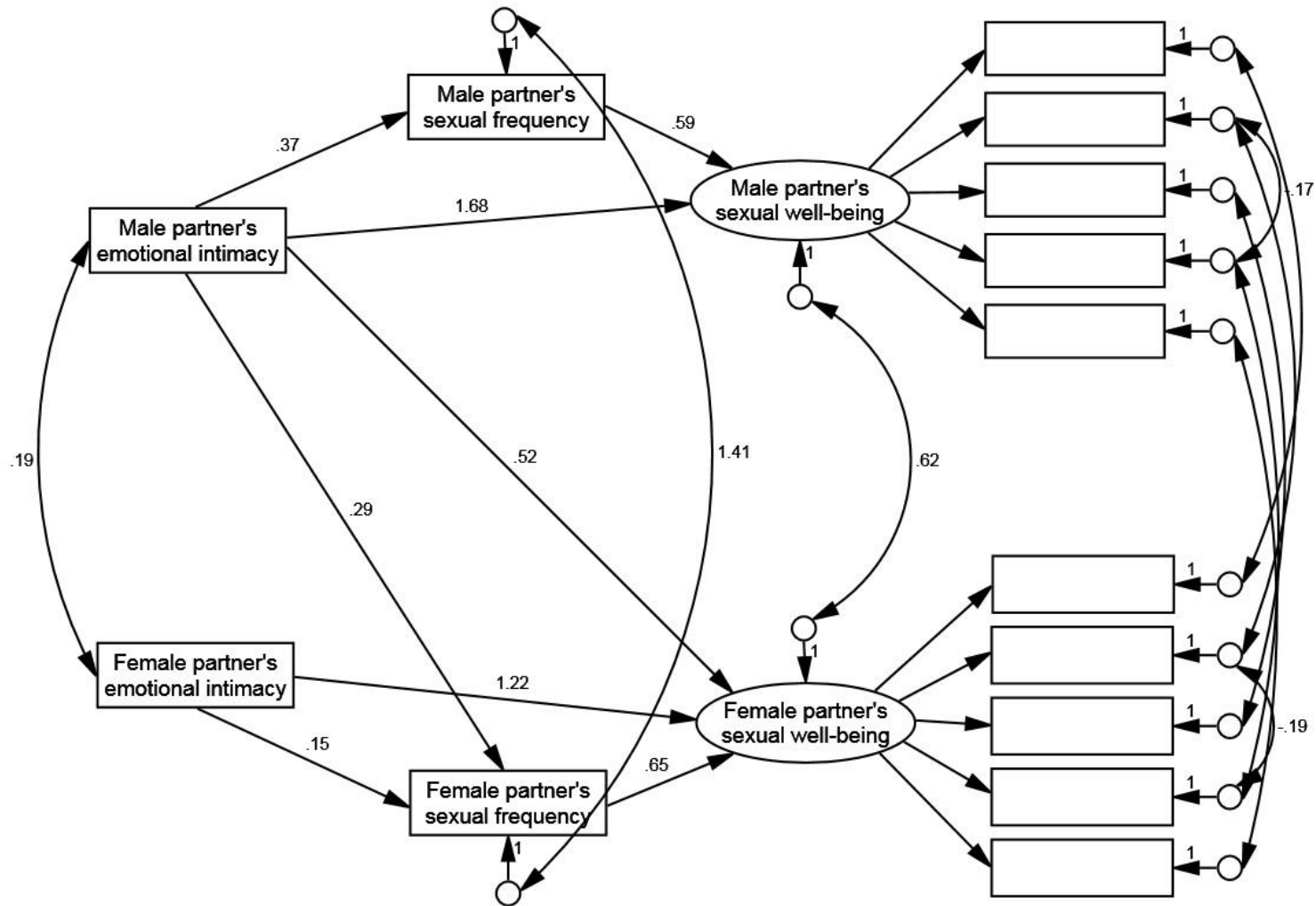


Figure 2 – Final Path Analytic Actor-Partner Interdependence Model ($n = 677$)



Notes. All paths (unstandardized path coefficients are presented) and structural covariances significant at $p < .05$

Table 1 – Basic Sociodemographic Characteristics of the Dyadic Sample (by Country)

	Norway		Denmark		Belgium		Portugal		
	Male	Female	Male	Female	Male	Female	Male	Female	
	partner	partner	partner	partner	partner	partner	partner	partner	
	<i>n</i> (%)		<i>n</i> (%)		<i>n</i> (%)		<i>n</i> (%)		
Age									
60-65	57 (26.1)	93 (42.7)	59 (28.5)	78 (37.7)	38 (28.1)	66 (48.9)	50 (42.7)	72 (61.5)	
66-70	85 (39.0)	86 (39.4)	73 (35.3)	90 (43.5)	60 (44.4)	48 (35.6)	42 (35.9)	35 (29.9)	
71-75	76 (34.9)	39 (17.9)	75 (36.2)	39 (18.8)	37 (27.4)	21 (15.6)	25 (21.4)	10 (8.5)	
Education									
primary	26 (11.9)	17 (7.8)	59 (28.9)	50 (24.3)	17 (15.6)	25 (18.6)	38 (32.5)	50 (42.7)	
secondary	65 (29.8)	87 (40.1)	72 (35.3)	79 (38.3)	72 (50.3)	71 (52.9)	62 (53.0)	47 (40.2)	
tertiary	127 (58.3)	113 (52.1)	73 (35.8)	77 (37.4)	46 (34.1)	38 (28.4)	17 (14.5)	20 (17.1)	
Relationship duration									
≤ 10 years	26 (6.6)		26 (6.5)		26 (10.2)		46 (22.1)		
11-20 years	28 (7.1)		10 (2.5)		6 (2.3)		8 (3.8)		
21-30 years	34 (8.6)		24 (6.0)		12 (4.7)		18 (8.7)		
≥ 31 years	306 (77.7)		338 (84.9)		164 (82.8)		136 (65.4)		
Religious attendance									

Never	78 (35.9)	66 (30.7)	65 (31.9)	52 (25.4)	50 (37.0)	51 (38.9)	29 (25.4)	23 (20.2)
Less than once a year	50 (23.0)	47 (21.9)	50 (24.5)	54 (26.3)	21 (15.6)	11 (8.4)	18 (15.8)	14 (12.3)
Once or twice a year	62 (28.6)	71 (33.0)	65 (31.9)	67 (32.7)	33 (24.4)	41 (31.3)	32 (28.1)	22 (19.3)
On a monthly basis	16 (7.4)	21 (9.8)	19 (9.3)	27 (13.2)	22 (16.3)	19 (16.0)	19 (16.7)	28 (24.6)
Once a week or more often	11 (5.1)	10 (4.7)	5 (2.5)	5 (2.4)	9 (6.7)	7 (5.3)	16 (14.0)	27 (23.7)

Place of residence

Village	138 (31.7)	162 (39.5)	60 (23.1)	22 (9.6)
Small town	162 (37.2)	134 (32.7)	140 (53.8)	60 (26.3)
Medium sized town	48 (11.0)	56 (13.7)	36 (13.8)	44 (19.3)
Suburb of a large city	38 (8.7)	40 (9.8)	16 (6.2)	34 (14.9)
Metropolitan city	50 (11.5)	18 (4.4)	8 (3.1)	68 (29.8)

Table 2 – Model Fit and Invariance Evaluation Information

	χ^2 (df)	CFI	Δ CFI	RMSEA	RMSEA 90% CI
Total sample	92.71 (29)	.959		.057	.044-.070
Multi-group model by country, unconstrained	195.53 (116)	.951		.032	.024-.040
Multi-group model, partial metric invariance	229.05 (140)	.945	.006	.032	.024-.040

Table 3 – Associations among Emotional Intimacy, Frequency of Sexual Intercourse and Sexual Well-Being in Couples from Four European Countries (Path Analytic APIM)

	Norway	Denmark	Belgium	Portugal
	B (S.E.)	B (S.E.)	B (S.E.)	B (S.E.)
Male intimacy to male sexual well-being	1.45*** (.22)	1.91*** (.24)	2.71*** (.48)	1.39*** (.24)
Male intimacy to male frequency of sexual intercourse	.59*** (.16)	.24 (.15)	.13 (.17)	.59** (.20)
Male frequency of sexual intercourse to male sexual well-being	.87*** (.16)	.59*** (.09)	.34** (.11)	.48*** (.20)
Male intimacy to female frequency of sexual intercourse	.30† (.16)	.23 (.16)	.33† (.18)	.29 (.22)
Male intimacy to female sexual well-being	.54** (.20)	.83*** (.20)	.75** (.27)	.01 (.22)

Female intimacy to female sexual well-being	1.16*** (.19)	1.21*** (.20)	1.85*** (.35)	1.41*** (.21)
Female intimacy to female frequency of sexual intercourse	.19* (.09)	.20* (.10)	.18 (.13)	.11 (.14)
Female frequency of sexual intercourse to female sexual well-being	.82*** (.10)	.71*** (.10)	.49*** (.13)	.55*** (.10)

	Indirect effect 95% CI	Indirect effects 95% CI	Indirect effect 95% CI	Indirect effect 95% CI
Male intimacy to male sexual well-being	.31-.78**	-.02-.37	-.03-.31	.12-.57**
Female intimacy to female sexual well-being	.04-.28*	.00-.28	-.02-.36	-.07-.18
Male intimacy to female sexual well-being	.06-.46*	-.02-.38	.03-.48*	-.03-.42

Notes. † $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$



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