Transplant Surgeon Burnout and Marital Distress in the Sandwich Generation: The Call for Organizational Support in Family Life

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ABSTRACT

Burnout (emotional exhaustion, depersonalization, and low personal accomplishment) is the enervation an individual experiences from a chronically taxing work environment. Little research has examined the demands of the sandwich generation (both children and older adults in the home) on burnout and marital satisfaction.

Methods. This is a cross-sectional survey of American and European transplant surgeons on the effects of sandwich generation–related demands on burnout and marital satisfaction, covarying for transplant surgeon age.

Results. A total of 286 married or partnered transplant surgeons were included. Presence (vs absence) of children in the home did not impact burnout, but those with children who reported difficulties with flexible childcare reported greater emotional exhaustion ($P = .03$) and depersonalization ($P = .02$) than those without difficulties. A total of 38.5% of married transplant surgeons reported marital distress. European transplant surgeons reported lower marital satisfaction than those from the United States ($P < .01$). Having an older adult in the home may also negatively impact transplant surgeons' marital satisfaction ($P = .048$).

Discussion. As health care organizations move forward with programs aimed at creating a sustainable workforce, providing professional environments supportive of important family-related demands is imperative.

BURNOUT is a term used to describe the enervation an individual experiences from a chronically taxing work environment. The 3 elements of burnout [1] (emotional exhaustion, depersonalization, and reduced personal accomplishment) have been associated with professional factors in surgeons including working more hours per week, more nights on call, less supportive professional environments, greater workload, and lower levels of autonomy [2–5]. Furthermore, there are demands outside of the professional environment, which have been less frequently examined, that have been associated with the development of burnout, including work-life balance.

Work-life balance research emphasizes the distinction between work-to-family and family-to-work conflict. Work-to-family conflict occurs when work demands and stressors conflict with the responsibilities of family life, resulting in a lack of participation in family life, and is associated with reduced marital satisfaction [6–8]. However, family-to-work conflict (family-related demands impacting performance in the work environment) has been less thoroughly examined in surgeons [9]. A family demand many couples experience is caring for both growing children and aging adults, referred to as the sandwich generation. Current estimates suggest that 9% to 13% of households in the United States and approximately 1% of European households are among the sandwich generation [10–12]. In community populations, responsibilities associated with caring for both

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children and aging adults are associated with higher levels of stress, less preventative health-related behaviors (eg, exercise, abstaining from tobacco use), and increased risk for burnout [13,14].

Whether sandwich generation–related demands specifically contribute to burnout in transplant surgeons has not been previously examined. Therefore, the purpose of this study was to examine the impact of sandwich generation demands on partnered and married transplant surgeons' experience of burnout and marital satisfaction.

MATERIALS AND METHODS

The study sample consisted of transplant surgeons throughout the United States and Europe. Transplant surgeons were recruited via email through their membership with either the American Society of Transplant Surgeons or the European Society of Organ Transplantation. European surgeons were requested to forward the e-mail to any eligible participants. All data and recruitment practices were implemented with full approval of the Henry Ford Health System's Institutional Review Board, American Society of Transplant Surgeons executive board, and European Society of Organ Transplantation executive board.

Questionnaires

Sociodemographic and personal data collected included age, sex, marital status, number of years with their partner, partners' work status, guardianship for any children (≤18 years old), difficulties with flexible childcare arrangements, any adults in the home that they were responsible for (such as an elderly parent or grandparent), and whether this adult required assistance with activities of daily living (ADLs).

Burnout was assessed using the Maslach Burnout Inventory-Human Services Survey (MBI) [15], a 22-item measure with 3 domains: emotional exhaustion, depersonalization, and personal accomplishment. Higher scores on emotional exhaustion and depersonalization and lower score on personal accomplishment indicate greater burnout. Recent meta-analyses indicate the MBI has consistently shown very good validity [15,16]. Marital satisfaction or distress was assessed using the Kansas Marital Satisfaction Scale (KMSS) [17], a 3-item scale. Higher scores indicate greater marital satisfaction; scores of ≤16 suggest marital distress [18]. A recent meta-analysis demonstrates that the KMSS is highly reliable [19].

Analyses were conducted using SPSS Version 22 (IBM Corporation, New York, NY, United States). Frequencies and descriptive statistics were run for all data, followed by bivariate analyses as appropriate. When data violated statistical assumptions, we applied logarithmic transformations. We performed several factorial analyses of covariance (ANCOVA), covarying for age, examining sandwich generation characteristics on emotional exhaustion, depersonalization, personal accomplishment, and marital satisfaction. Adjusted means for the ANCOVAs are reported when significant.

RESULTS

Overall characteristics of the entire sample of transplant surgeons, including distribution of low, moderate, and high burnout scores, have been described previously [4,20]. Of the 331 surgeons who completed the MBI, 286 (86.4%) reported being married or in long-term committed relationships and were included in analyses (respondent characteristics presented in Table 1). Using established cutoffs [18], 110 (38.5%) had scores indicating marital dissatisfaction or distress. Marital satisfaction significantly correlated with burnout; greater marital satisfaction was associated with lower emotional exhaustion, lower depersonalization, and greater personal accomplishment (Table 2). Age and years with partner were highly correlated; further analyses were performed with only age. Age was not related to marital satisfaction, but younger age correlated with greater depersonalization and lower personal accomplishment (Table 2).

Table 1. Married/Partnered ASTS and ESOT Transplant Surgeon Characteristics

	n (%)
Male	253 (88.5)
Location	
United States	198 (69.2)
Europe	88 (30.8)
Guardian of a child (≤18 years of age)	204 (71.2)
Experience difficulties with childcare arrangements	
Yes	125 (43.7)
No	77 (26.9)
Did not report	2 (0.9)
Other older adults reside in the home*	
No older adults in the home	114 (72.6)
Yes, but they do not require assistance with their ADLs	31 (19.7)
Yes and they require assistance with their ADLs	12 (7.6)
Partner employment	
Full-time	127 (44.4)
Part-time	65 (22.7)
Not employed/stay-at-home caregiver	90 (31.5)
Did not report	4 (1.4)

ADLs, activities of daily living; ASTS, American Society of Transplant Surgeons; ESOT, European Society of Organ Transplantation.
*Percentages are out of those who responded (n = 157); 129 did not respond to this item.

Examining transplant surgeon characteristics across burnout and marital satisfaction,[A] there were no significant differences between male and female transplant surgeons on emotional exhaustion ($P = .18$), depersonalization ($P = .20$), personal accomplishment ($P = .19$), or marital satisfaction ($P = .48$). Across locations, there were no significant differences between American and European transplant surgeons on burnout: emotional exhaustion ($P = .26$), depersonalization ($P = .78$), or personal

[A]Surgeon scores for depersonalization, personal accomplishment, and marital satisfaction all violated multiple tests of normality and had mild outliers (outliers were within range of possible scores, did not appear to be errors, and were therefore retained). As such, we performed logarithmic transformations for depersonalization, personal accomplishment, and marital satisfaction.

Table 2. Means (SD), Ranges, and Spearman Rho's Correlations for Surgeon Continuous Variables

	Mean (SD)	[Range]	2.	3.	4.	5.	6.
1. Age	48.2 (9.3)	[30–79]	.708*	.049†	−.103‡	−.234*	.144†
2. Years with partner	18.2 (9.2)	[2–46]		−.010†	−.115‡	−.157†	.149†
3. KMSS	18.2 (9.2)	[3–21]			−.253*	−.254*	.202*
4. Emotional Exhaustion	22.4 (11.9)	[0–54]				.597*	−.311*
5. Depersonalization	6.6 (5.4)	[0–27]					−.384*
6. Personal Accomplishment	36.2 (8.0)	[7–48]					

KMSS, Kansas Marital Satisfaction Scale.
*$P < .01$.
†$P < .05$.
‡$P > .05$ but $P < .1$.

accomplishment ($P = .23$). However, there was a significant difference on marital satisfaction with American transplant surgeons reporting significantly greater marital satisfaction (log 1.22, SE 0.15) than European transplant surgeons (log 1.15, SE 0.14; $P < .001$).[B] Of all married or partnered transplant surgeons, 38.5% reported scores in the marital distress range: 63.5% of European transplant surgeons fell in the distressed range, and 36.5% of US transplant surgeons fell in the marital distress range.

Of partnered transplant surgeons, 204 (71.3%) reported having a child or children. Only 17 (5.9%) female transplant surgeons reported having children, of which only 10 reported difficulties with childcare arrangements. Given the small subsample and limited power, we did not examine further sex differences on childcare accessibility. Forty (13.9%) of the transplant surgeons reported older adults were residing in the home, of which 12 reported the older adult required assistance with ADLs. Again, given the small subsample, we did not perform further analyses.

We performed a series of 2 (presence of child) by 2 (presence of older adult) ANCOVAs on burnout and marital satisfaction, covarying for age.[C] For emotional exhaustion, there were no significant main effects for presence of children ($P = .83$) or adults ($P = .68$) nor an interaction ($P = .64$). Next, we examined depersonalization but despite logarithmic transformation, the data still violated statistical assumptions. On personal accomplishment, there were no main effects on presence of children ($P = .82$) or adults ($P = .87$) nor an interaction ($P = .21$). Marital satisfaction, despite logarithmic transformation, also violated statistical assumptions.

Next, we performed a series of 2 (flexible childcare) by 2 (presence of older adult) ANCOVAs covarying for age.[D] For emotional exhaustion, there was a significant main effect; transplant surgeons who reported difficulties with flexible childcare reported significantly greater emotional exhaustion (M 25.26, SE 1.58) than those with children who did not report difficulties with flexible childcare (M 19.97, SE 1.76; $P = .03$). There was no main effect for adults ($P = .36$) nor an interaction ($P = .37$). For depersonalization, there was a significant main effect; transplant surgeons who reported difficulties with flexible childcare reported significantly greater depersonalization (log 0.79, SE 0.05) than those who did not report difficulties (log 0.60, SE 0.06; $P = .02$).[E] There was no main effect for presence of an adult ($P = .89$) nor an interaction ($P = .12$). For personal accomplishment, there were no main effects for flexible childcare ($P = .96$) or adults ($P = .11$) nor an interaction ($P = .66$). For marital satisfaction, there was a main effect for other adults in the home ($P = .048$); transplant surgeons with other older adults in the home reported significantly lower marital satisfaction (log 1.16, log SE 0.02) than those without other older adults in the home (log 1.22, log SE 0.01)[F] adjusting for transplant surgeon age. However, there was no significant main effect for flexible childcare ($P = .39$) nor an interaction ($P = .91$).

We wanted to examine whether partners' levels of employment (Table 1) affected burnout or marital satisfaction and whether this interacted with childcare-related demands. However, there were no significant differences on emotional exhaustion ($P = .14$), depersonalization

[B]Raw means (SD) on the KMSS; US 17.37 (4.14), EU 14.89 (3.44).

[C]Age was included as a covariate as a) age correlated with burnout (Table 2), b) those with children were younger (M 47.39 years, SD 8.36) than those without children (M 50.39 years, SD 11.25; $P = .04$), and c) those with children with difficulty with flexible childcare were younger (M 44.97 years, SD 7.20) than without difficulty with flexible childcare (M 51.21 years, SD 8.80; $P < .001$).

[D]Again included age as a covariate, those who experienced difficulties arranging flexible childcare were younger (M 44.97, SD 7.20) than those without difficulties with flexible childcare (M 51.21, SD 8.08; $P < .001$).

[E]Age-adjusted raw means (SD) on depersonalization; Difficulties with flexible childcare 7.32 (5.85), no difficulties with flexible childcare 5.19 (4.72).

[F]Age-adjusted raw means (SD) on KMSS; Older adults 15.52 (4.43), no older adults 16.87 (3.74).

($P = .14$), personal accomplishment ($P = .73$), or marital satisfaction ($P = .11$).

DISCUSSION

Prior research on whether having children contributes to burnout in surgeons has resulted in inconsistent findings [5,21–23].The findings of this study suggest that, rather than presence or absence of children, lack of access to reliable resources is the important element in the development of burnout in transplant surgeons. Globally, there is a wide range of options for childcare for professionals, from day-cares with specified hours to live-in assistance. Although we did not assess for types of childcare used, given the often unpredictable professional demands on transplant surgeons, it was not surprising to find that having reliable childcare had an impact on burnout. Ultimately, when partnered transplant surgeons have children and flexible childcare, they are able to engage more fully in their work. A natural conclusion would be to suggest providing childcare resources to employees. However, numerous factors contribute to the development of burnout and require consideration. For example, Ratnasingam et al [24] surveyed university employees of how supportive they perceived their organization was of family life, on-site employer-sponsored vs off-site nonemployer-sponsored childcare, and employee satisfaction and engagement (employee engagement is conceptualized as an opposite state from burnout) [25]. They found employees who perceived low levels of organizational support for family life and used employer-sponsored, on-site childcare reported significantly less work-related engagement than either those who perceived high levels of organizational support for family life while using on-site childcare or employees who reported low levels of organizational support and used off-site childcare. Further, for all employees who reported dissatisfaction with the quality of their childcare, those who used the on-site, employer-sponsored childcare were significantly less professionally engaged or satisfied than those who used off-site childcare. The authors concluded that, although the provision of family-friendly resources is an important element for a sustainable workforce, organizations must also foster family-supportive organizational environments for these resources to be effectual [24].

Women surgeons report taking on more of the childcare responsibilities than their male counterparts with children [26]. We intended to compare childcare-related demands across sex, but the distribution of women transplant surgeons with or without children was not adequate for analyses. However, consistent with our study, approximately 10% of transplant surgeons in the United States are female [27]. Given that nearly half of medical students are female [28], this brings forward the question of why there are fewer female transplant surgeons. Part of the answer is likely related to perceptions of difficulty with work-life balance. Surveys of medical students found they perceived the profession of surgery as less compatible with successful marriages, raising children, and less welcoming and even discriminatory toward women [29–31]. It will be imperative for the medical community to continue to address cultural barriers for individuals interested in surgical careers and having families.

Prior research suggests a negative impact on marital quality when an older family member moves in with a couple [32–34]. Although the presence of an older adult in the home did not impact aspects of burnout, our findings suggest marital satisfaction may suffer. We did not assess for the potential role of the older adult in the home, which can range from another adult able to assist with household demands to an individual who requires significant care, all of which have potential costs and benefits [33]. We attempted to parse out some of these effects by assessing whether the older adults required assistance with ADLs, but clearly further refinement of assessment is needed to accurately determine the real effects.

Unfortunately, a large proportion of transplant surgeons (38.5%) reported marital distress, and European transplant surgeons were nearly twice as likely to fall within the marital distressed range. This is an interesting finding considering Europeans have lower divorce rates than Americans and American physicians have lower divorce rates than other professions within the United States [35,36]. Whether marital distress translates to divorce is a much more complicated question and one that social scientists continue to study [37]. However, reiterating the substantial number of married transplant surgeons who reported possible marital distress, because work-related demands have been associated with the development of burnout but also with marital distress [38–40], fostering family-friendly work environments and interventions aimed at addressing work-to-family conflict will continue to be invaluable.

The nonsignificant differences between American and European transplant surgeons on burnout is surprising given identified differences between countries with regard to the structure of health care, administrative oversight, and the training and retention of transplant surgeons [41–43]. One explanation could be attributed to 2 types of selection bias: study-related and profession-related. Study-related selection bias is simply that those who participated in the study were different from those who did not participate. A profession-related self-selection bias implicates those who remain in the specialty of transplant surgery may be different from those who have left the specialty. This has been examined in the nursing literature, where burnout is associated with nurse turnover [44]. If those who are more susceptible to burnout are more likely to leave a specialty or profession entirely, then the findings of cross-sectional methodologies do not provide a complete picture. Given that certain groups of European transplant surgeons may be at increased risk for leaving the field [42], further longitudinal-style data collection is needed.

As with any study, there are several limitations. First, the questions on older adults residing in the home need clarification. We would encourage those interested in studying

sandwich generation effects to assess for health status, physical ability, and other descriptors as relevant. Second, given the strategy for recruitment, there is a high likelihood for response bias. We cannot be certain that this sample accurately reflects all American or European transplant surgeons. Third, given that this is a cross-sectional, cohort design, we cannot report on how the included variables develop or change over time. Despite these limitations, findings from this study are based upon a robust sample size of transplant surgeons and, therefore, we are confident in our inferences.

In conclusion, this study suggests lack of access to reliable childcare is related to burnout in partnered or married transplant surgeons with children. Furthermore, transplant surgeons reported high levels of marital distress. As health care organizations move forward with programs aimed at creating a sustainable workforce, creating professional cultural environments supportive of important family-related demands will be imperative. Future research may include a larger sample size of women in order to determine whether there are sex differences in childcare accessibility and burnout in surgeons.

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