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Magnitude and sources of distress in mid-life adults with chronic medical illness: An exploratory mixed-methods analysis

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Abstract

The majority of mid-life adults, a growing population spanning ages 50 to 64, already have at least one chronic medical condition (CMC) and are at risk for developing additional CMCs. Stressors specific to, or more common in, this life stage may contribute to CMC progression and development by creating barriers to healthy behaviors. The goal of this study was to compare the sources and intensity of distress, as they relate to completing health behaviors, between mid-life and non-mid-life adults with CMCs. We utilized a mixed-methods approach by analyzing quantitative self-report measures of psychiatric symptoms (depression and anxiety) and psychological well-being (positive affect and optimism) on validated self-report measures, along with in-depth, semi-structured qualitative interviews to identify sources of stress in three cohorts of patients with CMCs (heart failure, type 2 diabetes, and coronary artery disease). Between-group differences on self-report measures were compared via independent samples t-tests, and relevant themes from interview transcripts related to psychosocial stressors were derived by a pair of independent coders and compared via chi-square analysis. We found that mid-life participants (n=30) reported greater psychological distress (depression/anxiety) than non-mid-life (n=62) participants (Hospital Anxiety and Depression Scale scores 13.8 [SD 7.3] vs. 10.6 [SD 6.6]; t(90)=2.13; p=.035), and review of interview content revealed several specific sources of stress— occupational, financial, time, and caregiving stress—that were significantly more common (p<.

001) in mid-life adults. Interventions that target the specific needs of this population could reduce distress, improve health behaviors, and have a major impact on public health.

Introduction

Mid-life—ages 50 to 64—is a critical time period for health. Many chronic medical conditions (CMCs) manifest during this period and the majority of mid-life adults have at least one CMC (CDC, 2009, 2012). The growing number of mid-life adults, and their frequent development of CMCs, make mid-life health a public health priority.

Suboptimal participation in healthy behaviors (e.g., physical activity and diet), potentially related to mid-life-specific social and psychological factors, likely contributes to CMC development in mid-life (Blackwell, Lucas, & Clarke, 2014; Sun et al., 2010). Mid-life adults may face increased work responsibilities and caregiving burden (Dainese et al., 2011), high levels of psychiatric symptoms (Brody, 2014; Charlson et al., 2016; Coryell, 1988; Walker, McGee, & Druss, 2015) and diminished optimism and positive affect (Steptoe, Deaton, & Stone, 2015). These factors are linked to poor health behavior adherence and impaired medical prognosis.

Despite established links between psychosocial stressors, psychological status, and health behaviors, there has been limited study of these relationships in mid-life. Accordingly, we analyzed data from three studies of patients with CMCs (heart failure [HF], type 2 diabetes [T2D], and coronary artery disease [CAD]) that used quantitative self-report measures and qualitative interviews to examine patients' experiences. We compared differences in self-reported psychological symptoms between mid-life and non-mid-life persons and, using the semi-structured interviews, examined the frequency of stressors that can impede health behaviors. We hypothesized that mid-life persons with CMCs would report greater depression and anxiety, lower positive affect and optimism, and higher rates of specific (e.g., occupational) stressors than other adults with CMCs.

Methods

Participants

This mixed-methods analysis included participants hospitalized at an urban academic medical center enrolled in one of three studies. Study 1 (REACH for Health; N=30) included adults with New York Heart Association class II/III HF. Study 2 (QRDM; N=29) enrolled adults with T2D. Study 3 (PEACE; N=33) included adults with an acute coronary syndrome. In all studies, patients were excluded if they were unable to be physically active, were cognitively impaired, had no phone access, or had medical conditions that precluded interviews or were imminently terminal. All studies received Institutional Review Board approval.

Procedures

Self-report measures—During hospitalization, participants completed the Hospital Anxiety and Depression Scale (HADS) anxiety and depression subscales (Zigmond and Snaith, 1983), the Life Orientation Test-Revised (LOT-R) optimism scale (Scheier, Carver, & Bridges, 1994), and positive affect items from the Positive Affect Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988). Cronbach's alpha for the three scales in this analysis was $\alpha=0.83$, $\alpha=0.80$, and $\alpha=0.87$ respectively.

Qualitative Interviews—Semi-structured interviews (see Appendix) were completed at bedside by trained staff. Interview guides were created using a model (Bouchard, Shephard, & Stephens, 1993; Huffman, DuBois, Millstein, Celano, & Wexler, 2015) outlining contributors to health behavior adherence. Interviews focused on experience of medical illness, barriers to health behaviors, and psychological states. All interviews were recorded and transcripts reviewed for accuracy by the interviewer, and they were performed until thematic saturation was achieved (Guest, Bunce, & Johnson, 2006).

Analysis—To compare mid-life and non-mid-life persons on self-report measures, we utilized independent samples t-tests for bivariate analysis, and multivariable linear regression controlling for study/primary CMC. For qualitative analyses, two readers, blinded to participant age, reviewed transcripts, conducted content analysis, and coded interviews for the presence/absence of general barriers (chronic pain, medical comorbidities, fatigue, and arthritis) (Badley and Ansari, 2010; Gillette, Petrescu-Prahova, Herting, & Belza, 2015; McPhail, Schippers, Marshall, Waite, & Kuipers, 2014) and potential mid-life-specific barriers (occupational stress, financial strain, time burden, and caregiving burden (Lachman, Teshale, & Agrigoroaei, 2015)) linked to reduced health behavior participation. Twenty percent of transcripts were coded by both reviewers (theme concordance: $\kappa=.94$); discrepancies were adjudicated via discussion and text review. Reviewers then derived themes among mid-life participants regarding the relationship between sources of distress and health behaviors. To assess between-group differences in these barriers, we performed chi-square analysis and multivariable regression controlling for study/CMC. Analyses were repeated excluding participants under age 50, as younger patients with these CMCs may represent outliers. Data analyses were performed using Stata 14.2 (StataCorp, College Station, TX), and statistical tests were two-tailed ($\alpha=.05$).

Results

Ninety-two participants (n=30 mid-life) completed quantitative assessments (see Table 1 for participant characteristics).

Self-report measures

Mid-life participants (n=30) reported greater distress (depression/anxiety) than non-mid-life participants (HADS total—mid-life: 13.8 (SD=7.3) vs. non-mid-life: 10.6 (SD=6.6); t(90)=2.13; p=.035), with trends toward greater anxiety and depression on the HADS anxiety (p=.075) and depression (p=.054) subscales (Table 2). More mid-life patients exceeded cutoffs for elevated anxiety (HADS subscale score>7; mid-life: 33% vs. non-mid-

life: 15%) and depression (53% with HADS-D>7 vs. 31%). Mid-life participants also reported marginally lower positive affect on bivariate analysis (p=.056). After removing participants (n=8) with age <50, mid-life participants were found to have experienced significantly greater anxiety and depression (Table 2 and Supplementary Table 1).

Qualitative interviews: between-group comparisons regarding barriers/stressors

Eighty-eight semi-structured interviews were completed. There were no differences between mid-life (n=28) and non-mid-life (n=60) participants in experiencing *decreased energy/ fatigue*, *medical comorbidities*, *chronic pain*, or *arthritis* (Supplementary Table 2).

In contrast, several stressors were significantly more common in mid-life adults. These included *occupational stress* (p<.001), *caregiving stress* (p=.002), *financial stress* (p=.004), and *time burden* (p<.001; Table 3). These findings held on logistic regression accounting for study cohort/CMC and when younger participants were removed (Supplementary Table 2.

Themes from qualitative interviews among mid-life participants with CMCs

Several stressors noted above were linked with impaired health behaviors in mid-life adults (see Table 4). Occupational stress was commonly reported as a key barrier to modifying unhealthy behaviors (e.g., diet). Caregiving stress, often related to parenting and providing care to spouses/elderly parents, commonly impeded health behaviors. Though less prominent, financial stress also impacted health behaviors via decreased time and resources. Finally, some mid-life adults noted a combination of these stressors, including higher-level occupations with greater responsibilities, caregiving across generations, stress of providing for families, and managing CMCs.

Discussion

We found that mid-life persons with CMCs, compared to non-mid-life participants, reported greater psychological distress and were vastly more likely to identify occupational, financial, time-related, and caregiving-related stressors as barriers to healthy behaviors.

Our finding that mid-life persons reported having greater psychological distress (with the majority of mid-life persons reporting elevated depressive symptoms) is consistent with prior findings. In the *MID-life in the United States* study (Brim, Ryff, & Kessler, 2004), approximately 13% had elevated depressive symptoms and nearly 10% had an anxiety disorder (Gathuru, Odukoya, & Thorpe, 2016; Grzywacz and Ettner, 2000). Other work has likewise found that 10% of mid-life adults have elevated depressive symptoms (CDC, 2011; Valenstein, Vijan, Zeber, Boehm, & Buttar, 2001) Given that depression and anxiety are linked to poor health behavior completion, progression of CMCs, and mortality (Charlson, et al., 2016; Pederson, Warkentin, Majumdar, & McAlister, 2016; Saint Onge, Krueger, & Rogers, 2014), identification and management of these conditions is particularly important in mid-life persons with CMCs (Celano, Suarez, Mastromauro, Januzzi, & Huffman, 2013).

Mid-life persons also reported somewhat lower positive affect. Diminished positive affect and psychological well-being is associated with lower function (Celano, Beale, Moore, Wexler, & Huffman, 2013; Davis et al., 2015), less physical activity (Sin, Moskowitz, &

Whooley, 2015; White et al., 2012), and mortality (Chida and Steptoe, 2008; Giltay, Geleijnse, Zitman, Hoekstra, & Schouten, 2004; Hevey, McGee, & Horgan, 2014; A. Steptoe, Dockray, & Wardle, 2009). Specifically in mid-life adults, positive psychological states are linked to lower rates of metabolic syndrome and diabetes (Boehm et al., 2013b; Boylan and Ryff, 2015; Tsenkova, Karlamangla, & Ryff, 2016). Interventions to promote positive affect in medical patients (Bolier et al., 2013; Huffman et al., 2016; Peterson et al., 2012) may therefore be well-suited to mid-life persons with CMCs given their low positive affect and numerous stressors.

The finding that specific stressors related to work, finances, time, and caregiving are more common in mid-life persons with CMCs confirms prior work in non-disease populations (Almeida and Horn, 2004; Linn, Sandifer, & Stein, 1985; Piazza, Charles, & Almeida, 2007). These specific stressors were linked with suboptimal health behavior participation, which is, in turn, associated with lower function, more hospitalizations, and increased mortality.

This analysis had several limitations. First, we examined cross-sectional data in hospitalized patients. Hospitalization may have had a disproportionately greater effect on occupational and financial stressors in mid-life persons compared to older adults, and these findings may differ in a healthier community sample. Second, the interviews were not specifically designed to inquire about mid-life-stage specific stressors. Finally, we had only a moderate number of mid-life persons, requiring replication in a larger sample.

In conclusion, our study found that among hospitalized patients, mid-life adults with CMCs reported having more psychological distress and higher rates of specific psychosocial stressors than other adults, and these factors are linked to impaired health behavior adherence. Interventions targeted to the needs of this population, focusing on reducing stress and improving health behaviors, could have a major public health impact.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Baseline characteristics and mean self-report scores in total and by individual cohort

	Total (N = 92)	REACH (N = 30)	QRDM (N = 29)	PEACE (N = 33)
Demographic Characteristics				
Age (SD)	66.6 (11.8)	67.0 (13.1)	70.0 (9.1)	63.3 (12.2)
Sex - no. (%)				
Male	53 (57.6%)	7 (23.3%)	25 (86.2%)	21 (63.6%)
Female	39 (42.4%)	23 (76.7%)	4 (13.8%)	12 (36.4%)
Ethnicity – no. (%)				
Asian	4 (4.3%)	2 (6.6%)	1 (3.4%)	1 (3.1%)
Hispanic	4 (4.3%)	-	-	4 (12.1%)
Black	9 (9.8%)	4 (13.4%)	1 (3.4%)	4 (12.1%)
White	75 (81.6%)	24 (80%)	27 (93.2%)	24 (72.7%)
Marital status - no. (%)				
Single	16 (17.4%)	7 (23.3%)	4 (13.8%)	5 (15.1%)
Married	59 (64.1%)	16 (53.3%)	21 (72.4%)	22 (66.7%)
Widowed	9 (9.8%)	5 (16.7%)	2 (6.9%)	2 (6.1%)
Divorced	8 (8.7%)	2 (6.7%)	2 (6.9%)	4 (12.3%)
Psychological Characteristics (mean (SD))				
LOT-R Total (SD)	24.4 (5.7)	24.8 (5.2)	23.8 (5.6)	24.7 (6.4)
LOT-R Optimism	12.5 (3.0)	12.7 (2.5)	12.4 (2.8)	12.7 (3.7)
LOT-R Pessimism	11.9 (3.5)	12.1 (3.6)	11.3 (3.6)	12.3 (3.5)
HADS Total	11.6 (6.9)	11.6 (6.8)	9.2 (5.1)	13.8 (7.9)
HADS Anxiety	6.7 (4.5)	6.6 (4.8)	4.9 (2.9)	8.3 (4.9)
HADS Depression	5.0 (3.4)	5.1 (3.0)	4.3 (2.8)	5.5 (4.2)
PANAS Positive Affect	34.9 (7.8)	34.0 (8.0)	33.9 (6.5)	36.5 (8.6)

HADS = Hospital Anxiety and Depression Scale;

LOT-R = Life Orientation Test-Revised;

PANAS = Positive and Negative Affect Schedule;

SD = Standard Deviation

Table 2.

Differences in positive and negative psychological variables between mid-life and non-mid-life participants.

Self-Report Measures	Mid-Life (n=30) Mean (SD)	Non-mid-life (n=62) Mean (SD)	t	P-value
HADS	13.8 (7.3)	10.6 (6.5)	2.14	0.035 [*]
HADS Anxiety	7.9 (4.4)	6.1 (4.5)	1.80	0.074
HADS Depression	5.9 (3.7)	4.5 (3.1)	1.95	0.054
PANAS	32.6 (8.3)	36.0 (7.3)	1.93	0.056
LOT-R	23.9 (6.4)	24.7 (5.4)	0.61	0.54
LOT-R Pessimism	11.7 (3.7)	12.1 (3.4)	0.50	0.62
LOT-R Optimism	12.2 (3.1)	12.6 (3.0)	0.56	0.57
Self-Report Measures (excluding age < 50)	**Mid-Life (n=30)** Mean (SD)	**Non-mid-life (n=54)** Mean (SD)	**t**	**P-value**
HADS	13.8 (7.2)	9.9 (6.3)	2.53	0.013 [*]
HADS Anxiety	7.9 (4.4)	5.6 (4.0)	2.41	0.018 [*]
HADS Depression	5.9 (3.7)	4.3 (3.2)	2.02	0.046 [*]
PANAS Positive Affect	32.6 (8.3)	35.6 (7.5)	1.69	0.09
LOT-R	23.9 (6.4)	25.0 (5.2)	0.84	0.39
LOT-R Pessimism	11.7 (3.7)	12.5 (3.1)	1.02	0.30
LOT-R Optimism	12.2 (3.1)	12.5 (3.1)	0.43	0.67

HADS = Hospital Anxiety and Depression Scale;

LOT-R = Life Orientation Test-Revised;

PANAS = Positive and Negative Affect Schedule;

SD = Standard Deviation

[*] p-value < .05

Table 3.

Between-group comparisons on themes from qualitative interview.

Theme	Mid-Life	Non-mid-life	χ^2	P-value
Energy	13/28 (46.4%)	34/60 (56.7%)	0.80	0.37
Medical comorbidities	16/28 (57.1%)	41/60 (68.3%)	1.05	0.30
Pain	5/28 (17.8%)	14/60 (23.3%)	0.34	0.56
Arthritis	1/28 (3.6%)	8/60 (13.3%)	1.98	0.15
Occupational stress	17/28 (60.7%)	5/60 (8.3%)	27.94	0.001[*]
Caregiving	12/28 (42.8%)	8/60 (13.3%)	9.47	0.02[*]
Financial stress	9/28 (32.1%)	5/60 (8.3%)	8.09	0.004[*]
Time burden	22/28 (78.6%)	10/60 (16.7%)	31.61	0.001[*]
Theme	**Mid-Life**	**Non-mid-life** (excluding age < 50)	χ^2	**P-value**
Energy	13/28 (46.4%)	30/52 (57.7%)	0.93	0.33
Medical comorbidities	16/28 (57.1%)	38/52 (73.1%)	2.10	0.15
Pain	5/28 (17.8%)	13/52 (25.0%)	0.53	0.47
Arthritis	1/28 (3.6%)	8/52 (15.4%)	2.54	0.11
Occupational stress	17/28 (60.7%)	2/52 (3.8%)	32.50	0.001[*]
Caregiving	12/28 (42.8%)	6/52 (11.5%)	10.24	0.001[*]
Financial stress	9/28 (32.1%)	3/52 (5.8%)	9.93	0.002[*]
Time burden	22/28 (78.6%)	8/52 (15.4%)	31.00	0.001[*]

[*]
p-value < .05

Table 4.

Representative quotes from mid-life participants regarding stressors' impact on health behaviors.

Occupational stress

• *I've had high-pressure, high-stress jobs, jobs that don't end at five o 'clock in the afternoon...I think the load I have in terms of work, it's too, too high...what I call it is 'plates begin to drop' once it starts to get above a certain point. I lose control of it and then I really give up [on changing health behaviors].* (ID-8-QRDM)

Caregiving stress

• *I had a phenomenal mom and she had breast cancer, and she was dying and I took off and I... I literally took a year off and I took care of my mother.* (ID-31-REACH)

• *My wife likes to play tennis so we play tennis together. But we just haven't played since the baby [was born].* (ID-18-PEACE)

Financial stress

• *If you want to make any money and pay bills, you got to work all the time. Your day is gone working 12 hours a day, seven days a week...working a lot of hours and overtime every day of the week, when you are busy, led to a lot of wrong things [regarding self-care].* (ID-25-QRDM)

Multiple stressors

• *I think ofpressure.like my responsibility as a father and taking care of my house, everything else, my jobs...brought me a lot of stress. I used to do more exercise and be active... little by little the responsibility of the family, the kids, and I changed jobs so many times and that gave me a lot of stress. I had to pick and choose between taking care of my family and looking for the next job, or...taking care of myself. I was doing the right thing for my kids and my family, but not for myself so I felt like I was losing something, and I kept pushing myself until the heart attack.* (ID-36- PEACE)