Original Contribution

Hypertension Status, Treatment, and Control Among Spousal Pairs in a Middle-aged Adult Cohort

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Hypertension status among spouses is known to be concordant, but previous studies relied on history rather than direct measurement, and few data exist on treatment and control between spouses. The goal of this study was to estimate the spousal association of hypertension status, treatment, and control in adults. The authors identified and analyzed data on 4,500 pairs from the Atherosclerosis Risk in Communities (ARIC) cohort, which sampled middle-aged adults and their spouses in 1986–1989, with 3 follow-up visits 3 years apart. Generalized estimating equations were used in logistic regression analyses to calculate the odds ratio of a spouse's being hypertensive on the basis of the other spouse's hypertension status across 4 visits, adjusting for age, race, body mass index, smoking status, and sodium intake in both individuals. There are marginally increased odds of hypertension for spouses married to someone with hypertension (odds ratio (OR) = 1.15, 95% confidence interval (CI): 1.06, 1.25). Treatment was positively associated between spouses (OR = 1.35, 95% CI: 1.10, 1.67). Control was suggestive of an association, although it was not statistically significant (OR = 1.21, 95% CI: 0.93, 1.56). In middle-aged adults, hypertension status and treatment were moderately associated between spouses after controlling for shared environment. Physicians may target hypertension education and prevention to spouses as a pair rather than as 2 separate patients.

control; hypertension; spouses; therapeutics

Abbreviations: ARIC, Atherosclerosis Risk in Communities; CI, confidence interval; OR, odds ratio.

Marriage is a pivotal relationship for adults and has been identified as a social context that is associated with physical health (1–3), mental health (4), and decreased mortality (5). Spousal pairs may develop similar health conditions because they experience a shared environment including a common living environment, that is, similar health practices, life events, and socioeconomic status. Spouses may be assumed to be genetically unrelated and, thus, observed spousal associations suggest that their shared environment is the major contributor to similar health outcomes.

Cross-sectional epidemiologic studies have been influential in quantifying the spousal correlation of blood pressure (2, 6, 7) and the spousal concordance of diagnosed hypertension (6–10). However, previous studies have relied on history rather than direct blood pressure measurement and utilized medical records rather than direct observation of the spouses (6, 7). Longitudinal cohort studies of spousal pairs, which collect measures of treated and untreated hypertension, are more informative than cross-sectional studies when quantifying the spousal association of hypertension. These cohorts allow for assessment of the spousal association of hypertensive treatment and control among pairs who are both hypertensive. Although research suggests that spouses possess similar knowledge about hypertension, no studies, to our knowledge, have evaluated the spousal association of treated hypertension and controlled hypertension (11).

The aim of this study is to estimate the spousal association of hypertension status, hypertension treatment, and control among 4,500 spousal pairs over 9 years of follow-up in the Atherosclerosis Risk in Communities (ARIC) cohort.

MATERIALS AND METHODS

Study population

ARIC is a population-based cohort study of 15,792 individuals recruited in 1986–1989 from 4 US communities (Washington County, Maryland; Forsyth County, North Carolina; Jackson, Mississippi; Minneapolis, Minnesota). The institutional review boards of participating institutions (Johns Hopkins University, University of Mississippi, Wake Forest University, University of Minnesota, Baylor University, University of Texas, and University of North Carolina) approved the ARIC study protocol, and study participants provided written informed consent. This study consisted of 1 baseline visit (visit 1) and 3 follow-up visits (visits 2, 3, and 4), each conducted 3 years apart. Details of the study design have been previously published (12).

In each of the 4 communities, probability sampling was used to identify households. Prior to visit 1, study coordinators visited households to determine eligibility. At this household enumeration prior to the first visit, participants reported marital status. Respondent options included married, never married, divorced, separated, and widowed. If 2 participants were living in the same household and reported being married, they were considered to be spouses. All participants aged 45–64 years in a household and age-eligible spouses living in the same household were invited to participate in the study. This study is restricted to married pairs who were enrolled in ARIC. This subsample of ARIC is similar to the whole cohort, although not a simple random sample. This would be expected because, in the general population, people who are married differ in their demographics than those who are not married. Those who were not included in this subsample were primarily not married.

Exposure, outcome, and risk factors

The main exposure of interest was being married to a spouse with hypertension. Two other exposures included being married to a spouse who is treated for hypertension and whose hypertension is controlled. The outcomes of interest are the presence of hypertension, hypertension treatment, and controlled hypertension in the other spouse.

Blood pressure was measured at each of the study visits, providing up to 4 measures of blood pressure, each obtained 3 years apart. Technicians trained and certified in the use of a random-zero sphygmomanometer took 3 blood pressure measures at each visit. In keeping with the ARIC study protocol, an average of the second and third measurements was recorded for visits 1, 2, and 3, and the average of the first and second was recorded for visit 4. At each visit, participants reported whether they were taking a medication to treat hypertension. "Hypertension" was defined as the self-report of medication to treat hypertension or as the measured systolic blood pressure of $\geq$140 mm Hg or the diastolic blood pressure of $\geq$90 mm Hg. "Treated hypertension" was defined as the self-report of the use of a medication to treat hypertension. Additionally, "controlled hypertension" was defined as the presence of systolic blood pressure lower than 140 mm Hg and diastolic blood pressure lower than 90 mm Hg and the use of a medication to treat hypertension.

Age, race, current smoking status (former, ever, never), and educational level were self-reported at baseline. A low educational level was defined as less than a high school education. Additionally, total caloric intake (kcal) per day and daily sodium intake (mg/kcal) were estimated from a modified, 61-item Willet food frequency questionnaire (13). Discretionary use of salt (i.e., salt added at the table or in cooking) was not recorded and, therefore, not included as part of the estimated sodium intake. Body mass index was calculated as weight (kg)/height (m)^2.

Data analysis

First, we tested whether the husband and wife differed on baseline hypertension risk factors. Risk factors for hypertension were compared between spousal pairs (race, smoking status, education) and the outcome variables at each visit (presence of hypertension, treated hypertension, and controlled hypertension) by using McNemar's test for paired data. Additionally, the marginal and paired frequencies were calculated. The difference in blood pressure (systolic and diastolic) for husbands and wives, as well as for continuous risk factors for hypertension such as age, body mass index, caloric intake, and sodium intake, was also calculated. The paired differences in these continuous variables were tested by using a paired t test. Additionally, we calculated the Spearman correlation between the husbands' and wives' age, caloric intake, sodium intake, blood pressure (at each visit), and body mass index (at each visit). All P values were 2 sided.

Next, we used logistic regression analyses including generalized estimating equations (14) to calculate the odds ratio of a spouse's being hypertensive on the basis of the other spouse's hypertension status across all 4 visits. Additionally, among spousal pairs who were both hypertensive, we tested if having one spouse treated for hypertension increases the odds of the other spouse also being treated. Finally, among those spousal pairs that were both treated, we tested whether one spouse was more likely to have his/her blood pressure controlled if the other spouse had controlled blood pressure. These marginal odds ratios were calculated by using a logistic regression analysis through a generalized estimating equation (14), assuming unstructured correlation.

These associations were tested in separate models for the husband's and wife's outcomes. For each exposure and outcome, we constructed 1 unadjusted model and 3 different adjusted models to account for the husband's risk factors, the wife's risk factors, and the spousal pair's risk factors. The unadjusted model represents the total spousal association including the effects of shared norms, practices, and behaviors. The time-fixed risk factors (based on available data) were baseline age, race, smoking status, and sodium intake. The only time-varying risk factor for which we had data was body mass index. The adjusted models are meant to account for physiologic traits, which may be associated with both the husband's and the wife's hypertension, treatment, and control and, thus, confound the spousal association. Education was not included in the final model because it was not a strong confounder in this study population. By estimating the associations separately for husbands and wives, we could assess whether the association was symmetric, such

Table 1. Characteristics of the Spousal Pairs and the Concordance of the Characteristics, ARIC Cohort Study, 1986–1998

Sample Size (Individual/Pairs)	No. of Pairs	Marginal Data			Paired Data				
		Husbands, %	Wives, %	P Value	H+/W+, %	H+/W−, %	H−/W+, %	H−/W−, %	P Value[a]
Baseline characteristics									
White race	4,500	85	84	0.95	84	0.2	0.2	15	0.82
Cigarette smoking	4,495	25	21	<0.001	10	15	12	64	0.01
<12th grade education	4,485	23	17	<0.001	10	12	6	71	<0.001
Time-varying characteristics by visit designation									
Hypertension[b]									
1	4,459	33	29	<0.001	12	21	17	50	<0.001
2	4,015	35	27	<0.001	13	22	17	48	<0.001
3	3,494	39	36	0.01	17	22	19	42	0.01
4	3,078	47	44	0.21	23	23	22	33	0.02
Treated[c]						15			
1	532	70	75	0.01	55		21	10	0.02
2	515	76	78	0.01	61	15	17	7	0.49
3	587	76	81	0.01	64	12	17	7	0.02
4	692	79	76	0.07	60	18	16	6	0.27
Controlled[d]									
1	291	68	69	0.33	47	20	22	10	0.72
2	312	69	75	0.01	53	15	22	10	0.09
3	376	66	67	0.44	44	22	22	11	0.94
4	413	62	63	0.42	42	20	21	17	0.82

Abbreviations: ARIC, Atherosclerosis Risk in Communities; H+, husband has the characteristic; H−, husband does not have the characteristic; W+, wife has the characteristic; W−, wife does not have the characteristic.

[a] McNemar's exact P value.

[b] Hypertension was defined as a diastolic blood pressure greater than or equal to 90 mm Hg, systolic blood pressure greater than or equal to 140 mm Hg, or use of an antihypertensive medication.

[c] Treated hypertension was examined only among those who were hypertensive.

[d] Controlled hypertension was examined only among those who were treated.

that the effect of the husband's hypertension on the wife was the same as the effect of the wife's hypertension on the husband.

All analyses were performed in SAS, version 9.1, software (SAS Institute, Inc., Cary, North Carolina).

RESULTS

Study population

Our study population included 4,500 spousal pairs who participated in at least the first visit of ARIC. There were 4,491, 4,037, 3,532, and 3,102 spousal pairs with measured blood pressure at visits 1–4 (3 years apart), respectively (Table 1).

Spousal pairs were likely to be the same race (Table 1). However, at baseline, husbands were more likely to be current smokers (25% vs. 21%) ($P < 0.001$) and to have a low level of education than their wives (22% vs. 17%) ($P < 0.001$) (Table 1). Pairs were concordant on their smoking status and educational level, on the basis of the paired data (Table 1).

At baseline, the average age of the husbands was higher than that of the wives (55 vs. 53 years) ($P < 0.001$). Additionally, husbands had a higher daily caloric and sodium intake (Table 2). At visits 1 and 2, the average of the husband's body mass index was modestly higher than that of the wife—visit 1: 27.5 versus 27.1 kg/m^2 ($P < 0.001$); visit 2: 27.7 versus 27.4 kg/m^2 ($P = 0.004$). Between visits 3 and 4, there was no longer a significant difference in the body mass indexes of husbands and wives. At all 4 visits, the difference in body mass index was minimal or not significant. The difference in systolic blood pressure, diastolic blood pressure, and body mass index decreased with every visit, suggesting that the longer spouses are together, the more similar their blood pressure and body mass index.

Association of hypertension status among spousal pairs

The average systolic and diastolic blood pressures were higher in husbands than wives at each 3-year follow-up visit—visit 1 systolic blood pressure: 121.9 versus 118.1 mm Hg

Table 2.   Characteristics of the Spousal Pairs and the Difference in Continuous Characteristics, ARIC Cohort Study, 1986–1998

	No. of Pairs	Correlation	Marginal Data, Mean (SD)		Paired Data, Mean Difference (SD)[a]	P Value[b]
			Husband	Wife		
Baseline characteristics						
Age, years	4,500	0.80	55.46 (5.4)	53.10 (5.2)	2.37 (3.4)	<0.001
Calories, kcal	4,335	0.15	1,769 (638)	1,502 (524)	266.6 (769.4)	<0.001
Sodium intake, mg/kcal	4,334	0.17	1,596 (619)	1,407 (540)	189.4 (752.7)	<0.001
Time-varying characteristics by visit designation						
Systolic blood pressure, mm Hg						
1	4,492	0.16	121.89 (17.4)	118.14 (18.2)	3.75 (23.2)	<0.001
2	4,038	0.10	122.64 (18.0)	119.04 (18.5)	3.60 (24.5)	<0.001
3	3,533	0.10	125.10 (18.0)	122.5 (18.7)	2.64 (24.4)	<0.001
4	3,103	0.10	127.02 (18.3)	126.46 (18.7)	0.57 (24.6)	0.20
Diastolic blood pressure, mm Hg						
1	4,491	0.15	74.72 (10.7)	71.28 (10.2)	3.44 (13.6)	<0.001
2	4,037	0.09	73.46 (10.0)	70.45 (9.7)	3.01 (13.3)	<0.001
3	3,532	0.10	72.68 (10.1)	70.10 (9.8)	2.58 (13.3)	<0.001
4	3,102	0.07	71.50 (10.0)	69.45 (9.8)	2.05 (13.4)	<0.001
Body mass index, kg/m^2						
1	4,491	0.18	27.53 (4.1)	27.10 (5.7)	0.44 (6.4)	<0.001
2	4,033	0.18	27.72 (4.1)	27.44 (5.7)	0.29 (6.4)	0.004
3	3,529	0.19	28.17 (4.3)	28.10 (5.9)	0.07 (6.6)	0.52
4	3,095	0.18	28.44 (4.4)	28.42 (5.9)	0.02 (6.7)	0.85

Abbreviations: ARIC, Atherosclerosis Risk in Communities; SD, standard deviation.

[a] Mean difference: husband − wife.

[b] P values are based on the paired t test.

($P < 0.0001$); visit 1 diastolic blood pressure: 74.7 versus 71.3 mm Hg ($P < 0.0001$) (Table 2). The Spearman correlations for systolic blood pressure between husbands and wives were modest at each of the 4 visits—0.16, 0.10, 0.10, and 0.10, respectively. The Spearman correlations for diastolic blood pressure at visits 1–4 were 0.15, 0.09, 0.10, and 0.07, respectively, for husbands and wives. Figures 1 and 2 present the associations of the spouses' baseline systolic and diastolic blood pressures, respectively. The spouses' systolic blood pressure and diastolic blood pressure were correlated, although the correlation was modest.

The percentage of husbands with hypertension increased at each 3-year follow-up visit (33%, 35%, 39%, and 47% at each respective visit). A similar increase was observed for wives too (29%, 27%, 36%, and 44% at each respective visit). At all 4 visits, a higher proportion of husbands had hypertension than wives. On the basis of paired data, more than 10% of spousal pairs both had hypertension at each visit: 12.0%, 12.9%, 16.9%, and 22.6% at visits 1–4, respectively. Among spousal pairs in which at least 1 spouse had hypertension, the percentage of pairs with both spouses having hypertension was 24% (95% confidence interval (CI): 12, 36) (baseline); 25% (95% CI: 13, 37) (visit 2); 29% (95% CI: 17, 41) (visit 3); and 34% (95% CI: 23, 45) (visit 4). Additionally, having a spouse with hypertension increased

the likelihood that the other spouse would also have hypertension at all visits except visit 4 (Table 1).

The unadjusted marginal odds ratio of a wife's having hypertension when the husband had hypertension was 1.26 (95% CI: 1.17, 1.36) (Table 3). Separately adjusting for the wife's and husband's risk factors led to a similar association (odds ratio (OR) = 1.14) between the wife's and husband's hypertension status. After adjustment for both the husband's and wife's risk factors in the same model, the odds of a wife's having hypertension were 1.15 (95% CI: 1.06, 1.25) times greater when the husband had hypertension. Additionally, the association of spousal hypertension was symmetric, such that the unadjusted and adjusted models for the odds of the husband's developing hypertension based on the wife's hypertension status were similar to the association from the model for the wife's hypertension status (adjusted OR = 1.18, 95% CI: 1.08, 1.28).

Association of hypertension treatment among spousal pairs

Among the couples that were both hypertensive, more than 70% of the husbands and 75% of the wives were treated for hypertension at each visit (Table 1). Overall, the percentage of spouses who were treated among those with hypertension
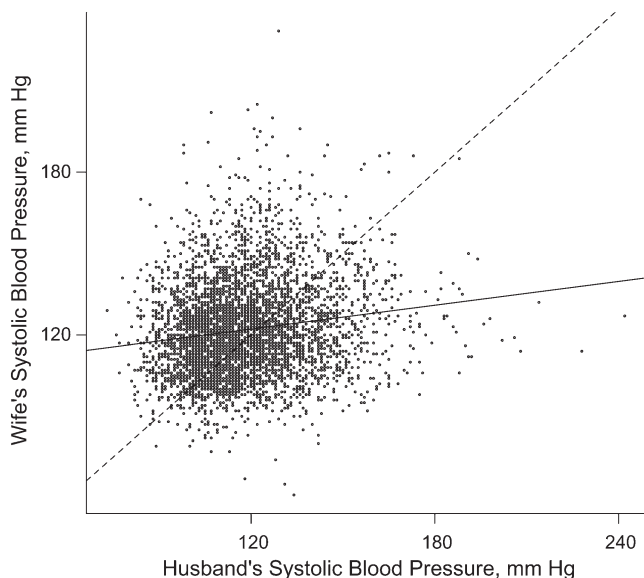
Figure 1. Baseline systolic blood pressure between spouses, ARIC Cohort Study, 1986–1998. The solid line is the regression line. The dashed line is the model representing equality of the couple's systolic blood pressures. ARIC, Atherosclerosis Risk in Communities.
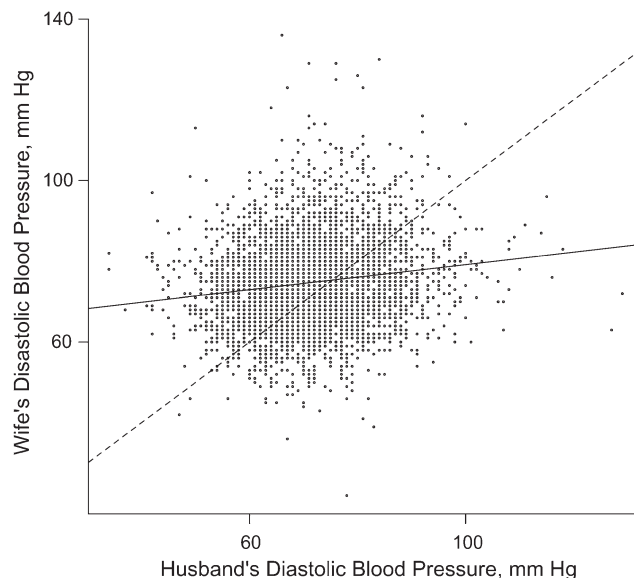

Figure 2. Baseline diastolic blood pressure between spouses, ARIC Cohort Study, 1986–1998. The solid line is the regression line. The dashed line is the model representing equality of the couple's diastolic blood pressure. ARIC, Atherosclerosis Risk in Communities.

increased at each visit. From the paired data, at each visit a significant proportion of spousal pairs with hypertension were both treated for hypertension: 55%, 61%, 64%, and 60% at visits 1–4, respectively. Additionally, 60% (95% CI: 50, 70) (baseline), 66% (95% CI: 56, 76) (visit 2), 69% (95% CI: 60, 78) (visit 3), and 64% (95% CI: 54, 74) (visit 4) of the couples with at least 1 spouse treated had both spouses treated.

For couples that were both hypertensive, the wives were more likely to have their hypertension treated if their husband was treated in both the unadjusted (OR = 1.41, 95% CI: 1.15, 1.72) and adjusted (OR = 1.35, 95% CI: 1.10, 1.67) models. The spousal associations of treated hypertension were also symmetric, as the husband's adjusted odds of being treated for hypertension based on his wife's being treated were 1.32 (95% CI: 1.06, 1.63).

Association of hypertension control among spousal pairs

At each visit, more than 62% of the husbands and 63% of the wives with treated hypertension were controlled (Table 1). At visits 1–4 (3 years apart), respectively, 47%, 53%, 44%, and 42% of spousal pairs with treated hypertension were both controlled. At each of the 3-year follow-up visits, 10%, 10%, 11%, and 17% of the treated spousal pairs were both uncontrolled. Among spousal pairs where at least 1 spouse was controlled, 53% (95% CI: 43, 63), 59% (95% CI: 49, 69), 50% (95% CI: 40, 60), and 51% (95% CI: 40, 62) at visits 1–4, respectively, were both controlled.

Among couples with treated hypertension, there was an increased likelihood of being controlled if the spouse was controlled after adjustment for both spouses' risk factors (husband: OR = 1.16, 95% CI: 0.90, 1.50; wife: OR = 1.21, 95% CI:

0.93, 1.51). Although suggestive of an association, the results were not statistically significant in the adjusted or unadjusted analyses (Table 3).

Sensitivity analysis including those attending all 4 study visits and further analysis

All 4,500 spousal pairs did not attend all 4 visits. Therefore, a sensitivity analysis was conducted to test whether our results differed when we restricted the analyses to the 2,912 spousal pairs who attended all 4 visits and had measured blood pressure (data not shown). The marginal odds ratios and level of statistical significance were similar. For example, the marginal odds ratio for the wife's developing hypertension when the husband was hypertensive was 1.13 compared with 1.15 in the full sample. Similarly, the marginal odds ratio for the husband's having hypertension when the wife was hypertensive was 1.16 compared with 1.18 in the full sample. Similar results were seen for treated and controlled hypertension. Additionally, the results were robust when the cross-sectional spousal associations of hypertension status, treatment, and control at baseline were assessed.

We stratified the hypertension status, treatment, and control analyses by race but found that there was no interaction of the spouse's hypertension status and race ($P = 0.29$), treatment and race ($P = 0.37$), and control ($P = 0.25$). This suggests that there is no heterogeneity by race.

DISCUSSION

This study suggests that having a spouse with hypertension marginally increases the odds that the other spouse has

Table 3.   Spousal Association of Hypertension Status, Treatment, and Control, ARIC Cohort Study, 1986–1998[a]

Model	Hypertension[b] Status (n = 4,327)		Treatment[c] Status (n = 1,080)		Controlled[d] Status (n = 637)	
	OR	95% CI	OR	95% CI	OR	95% CI
Spouse's status	1.26	1.17, 1.36	1.41	1.15, 1.72	1.22	0.95, 1.57
Spouse's status, individual's RFs[e]	1.14	1.05, 1.24	1.36	1.11, 1.68	1.18	0.92, 1.53
Spouse's status, spouse's RFs[e]	1.14	1.06, 1.24	1.36	1.11, 1.68	1.22	0.95, 1.57
Spouse's status, both RFs[e]	1.15	1.06, 1.25	1.35	1.10, 1.67	1.21	0.93, 1.56

Abbreviations: ARIC, Atherosclerosis Risk in Communities; CI, confidence interval; OR, odds ratio; RF, risk factor.

[a] Results are reported with the wife's hypertension status, treatment, and control as the outcome. Similar results were observed with the husband's status as the outcome.

[b] Hypertension was defined as a diastolic blood pressure of ≥90 mm Hg, systolic blood pressure of ≥140 mm Hg, or use of an antihypertensive medication.

[c] Treated hypertension was among those who were hypertensive.

[d] Controlled hypertension was among those who were treated.

[e] Risk factors are age, race, body mass index, smoking status, and sodium intake.

hypertension independent of both spouses' risk factors. Our results suggest that there are a modest spousal association of hypertension treatment and a modest spousal association of hypertension control. These results did not differ by race. Additionally, among spousal pairs, our findings support the hypothesis that a shared environment contributes to hypertension, although the impact may be modest in middle-aged adults. The results were symmetric, suggesting that the environmental contribution exerts an equal effect on both the husband and the wife.

This study improves and expands existing literature on the concordance of hypertension among spouses by its improved characterization of hypertension, treatment, and control, as well as by its prospective, longitudinal design with an average of 9 years of follow-up. Our findings confirm results published in previous studies (2). In a meta-analysis, the correlation of blood pressure within spousal pairs was estimated to be 0.10 for systolic blood pressure and 0.09 for diastolic blood pressure, and the meta-analysis odds ratio for the concordance of hypertension was 1.21 (95% CI: 1.16, 1.26) (2).

Five published cross-sectional studies have evaluated the spousal concordance of hypertension (6–10). Three of those study samples were not based in the United States, and the odds ratio for spousal concordance of hypertension ranged from 1.20 to 1.42 after adjustment for age, smoking status, body mass index, education, occupation, and family income (7, 9, 10). Two studies used medical records to show that patients with diagnosed hypertension have an increased odds of having a spouse with hypertension (OR = 1.32, 95% CI: 1.04, 1.67) (7), a husband (OR = 2.24, 95% CI: 1.77, 2.72), and a wife (OR = 2.23, 95% CI: 1.75, 2.72) (6). These studies may have estimated a stronger association than ours because they focused on diagnosed hypertension, which may differ from undiagnosed hypertension, and they adjusted only for age and sex, rather than including other risk factors for hypertension such as body mass index and sodium intake. Furthermore, inference from the aforementioned studies is limited by their use of participant's self-report to define hypertension (9, 10), the use of one spouse

to report the other's hypertension status (9), the use of medical records to define hypertension (7), and the lack of data on undiagnosed hypertension (6, 7). Finally, these studies utilized a cross-sectional design, which is weaker than this longitudinal study design.

These study results are similar in magnitude to the only cross-sectional study conducted using a US cohort. That study included Mexican Americans and found that the risk of a self-reported diagnosis of hypertension was predicted by the other spouse's hypertension status and the spouse's risk factors (10). Those authors reported that associations were similar when the husband's and wife's hypertension status was used as the outcome: for the husband (OR = 1.75, 95% CI: 1.21, 2.54) and for the wife (OR = 1.63, 95% CI: 1.13, 2.36). Additionally, similar to this study's results, the cross-sectional associations appear to be symmetric. Of note, a study of the African-American participants in ARIC found that participants who were not married were at the same risk of hypertension as those who were married, and this association was the same in men and women (3).

One explanation for this study's findings is that physiologic conditions shared by married couples influence the development of disease (15). Cross-sectional data have shown that spouses may be concordant in conditions such as asthma, depression, hyperlipidemia, and peptic ulcers (7).

This study has several strengths and extends knowledge of the influence spouses have on each other's health. First, this cohort is a large (4,500 spousal pairs), biracial (white and African American) population-based sample with over 9 years of follow-up. The use of longitudinal measures of hypertension contributes to the elucidation of whether shared environments explain the spousal concordance of hypertension. Additionally, blood pressure was measured, and antihypertensive medication use was collected allowing for the inclusion of diagnosed and undiagnosed hypertension, as well as treated and controlled hypertension. Finally, the models were adjusted for more risk factors associated with hypertension than previous studies.

There are limitations of this work worth noting. First, marital status was ascertained at only one visit. It is unclear

whether the spouses remained married throughout the 9-year follow-up period. However, ARIC is a cohort of middle-aged adults who would be less likely to separate over a 9-year period than younger spouses. The study did not collect data on length of marriage or cohabitation and the quality of the marriage. Additionally, because participants were not asked to report whether they were diagnosed with hypertension, we were unable to ascertain whether spouses were concordant on knowledge of hypertension status. Although the focus of our study was spousal pairs, our results may not be generalizable or informative to couples who are not married or single. Finally, we recognize that hypertension treatment guidelines have changed since the start of the ARIC study in the 1980s. However, a major strength of this study is its longitudinal nature, which detects changing trends in hypertension management.

In conclusion, hypertension contributes significantly to the disease burden in the United States and worldwide (16, 17). As the prevalence of hypertension continues to grow, it is important to identify methods to deliver hypertension education and treatment to decrease the likelihood that a person develops preventable outcomes such as stroke. Although the current public health strategy is based on wide, if not universal, screening for hypertension, there are still gaps in detection. For spouses, this gap may be closed when a physician recognizes that there is a spousal association of hypertension status (18, 19). It has yet to be examined whether the spousal association of hypertension has practical implications for targeting treatment to spouses. In sum, these results suggest that physicians and public health practitioners may want to target hypertension prevention and screening to spouses as a pair rather than as 2 separate individuals.

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