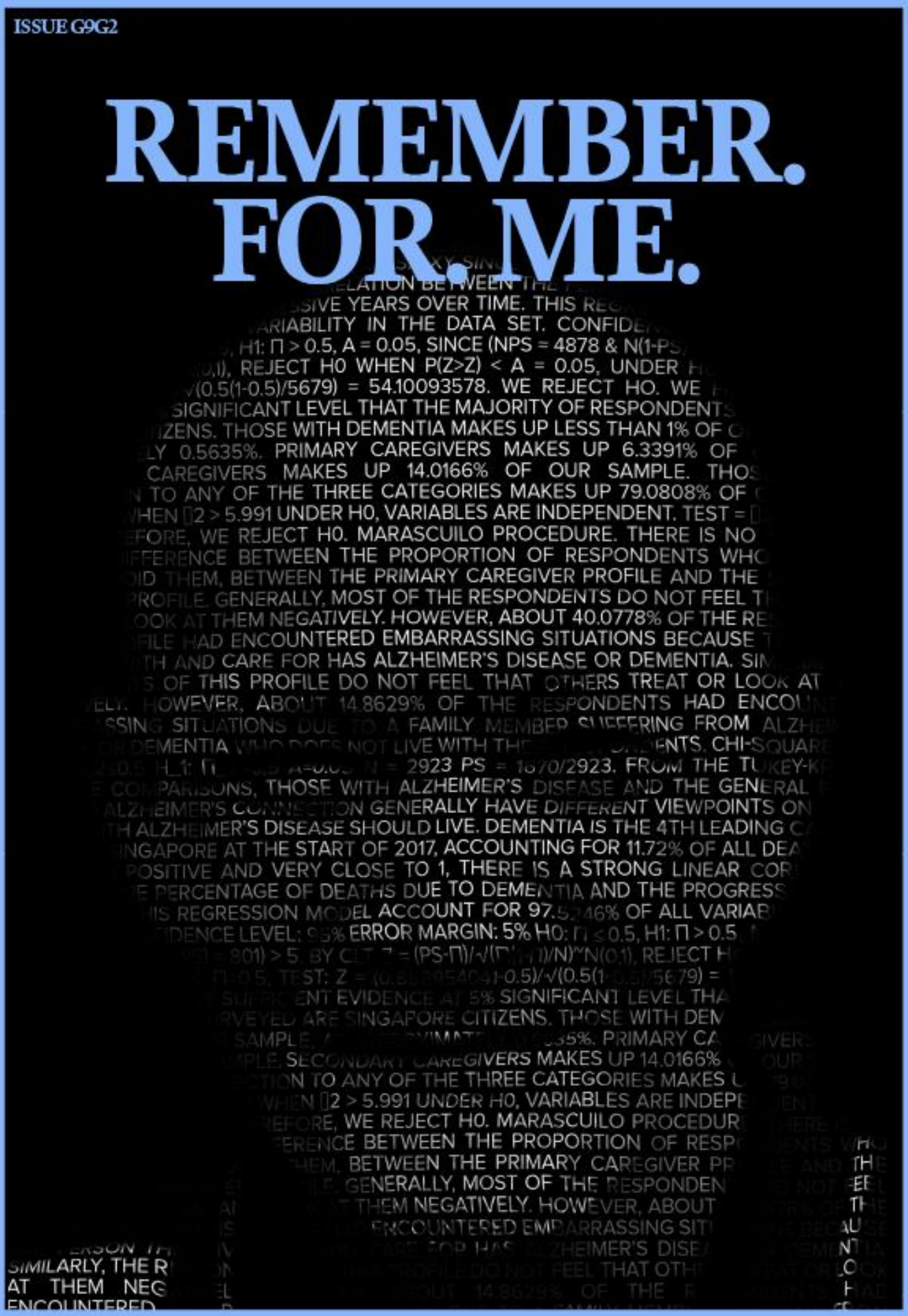
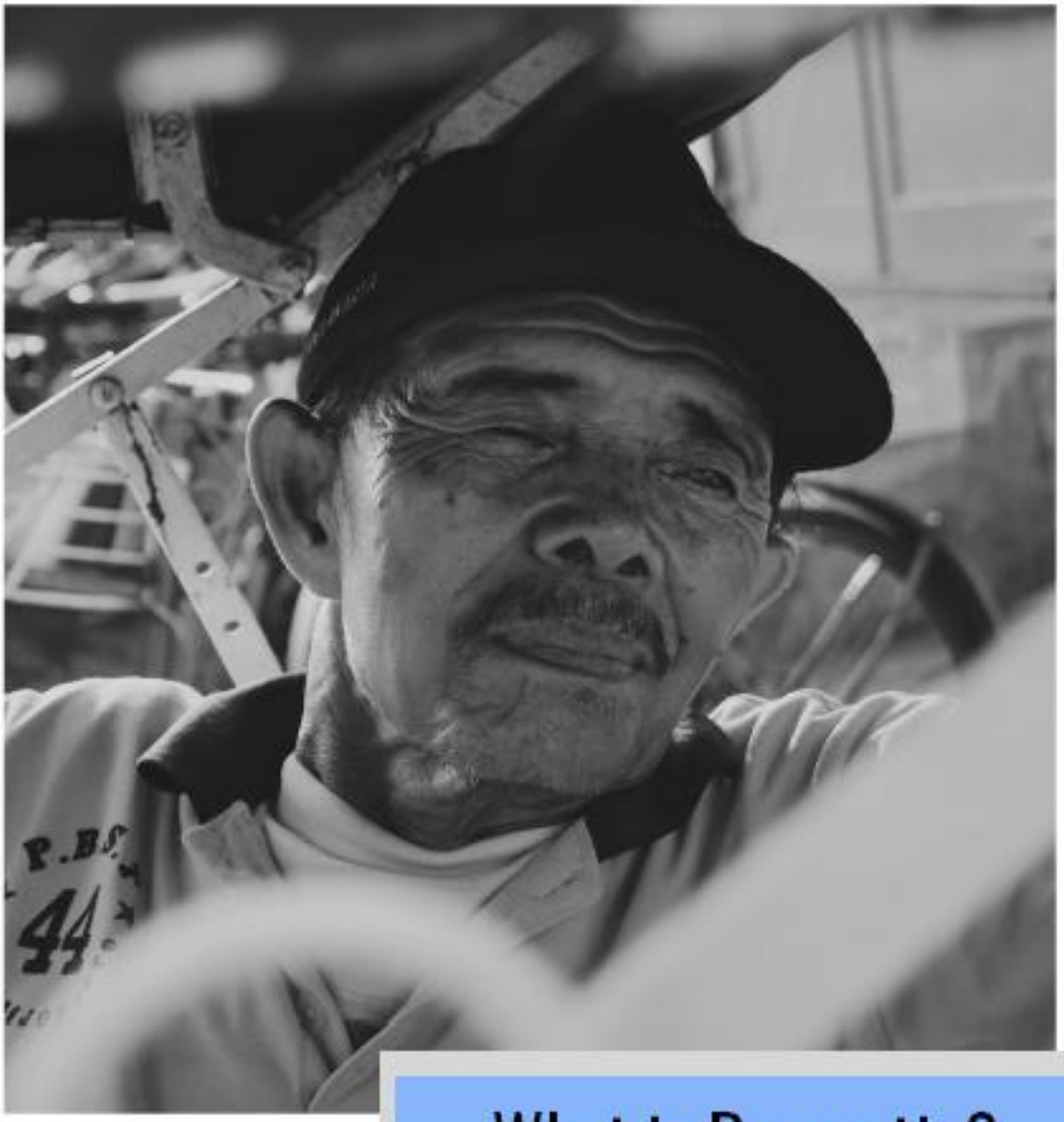
ISSUE G9G2

REMEMBER. FOR ME.



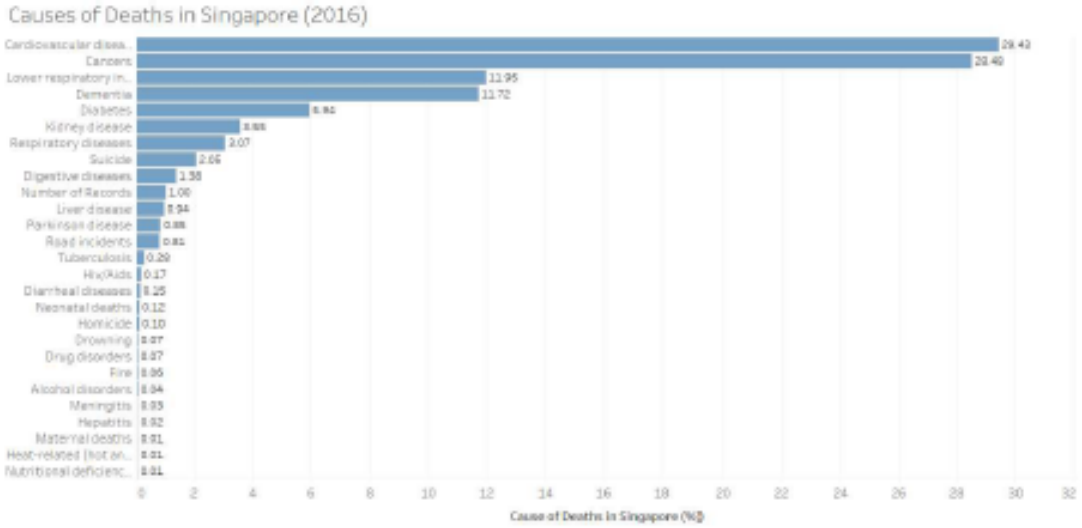


What is Dementia?

Overall term that describes a group of symptoms related to loss of memory resulting in a reduction of a person's ability to perform day to day activities.

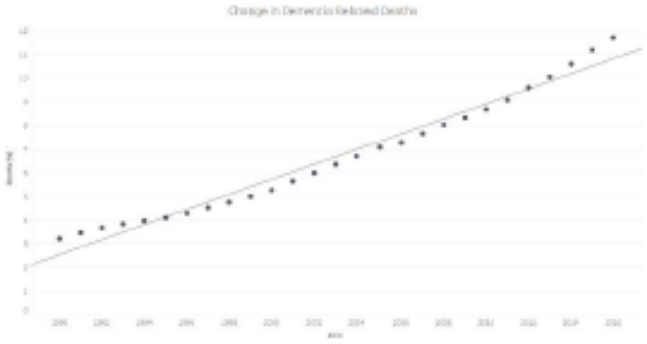
Section A

A2. Across the globe by the start of 2017, dementia ranked fourth from the top, as shown at right. Generate a similar chart which ranks the shares of deaths by cause in Singapore. What position does dementia take?



Dementia is the **4th leading cause** of death in Singapore at the start of 2017, accounting for 11.72% of all deaths.

A3. Run a regression model of Singapore's trend in its share of deaths caused by dementia across the years from 1990 to 2016. Predict the figure to come by 2030. Is this cause for alarm?



Let x be the Year
Let y be the percentage of deaths caused by dementia

$\sum xy$	361674.3546
$\sum x$	54081
$\sum y$	180.3058667
$(\sum x)^2$	2924754561
$(\sum y)^2$	32510.20555
$\sum(x^2)$	108325881
$\sum(y^2)$	1374.462165
N	27

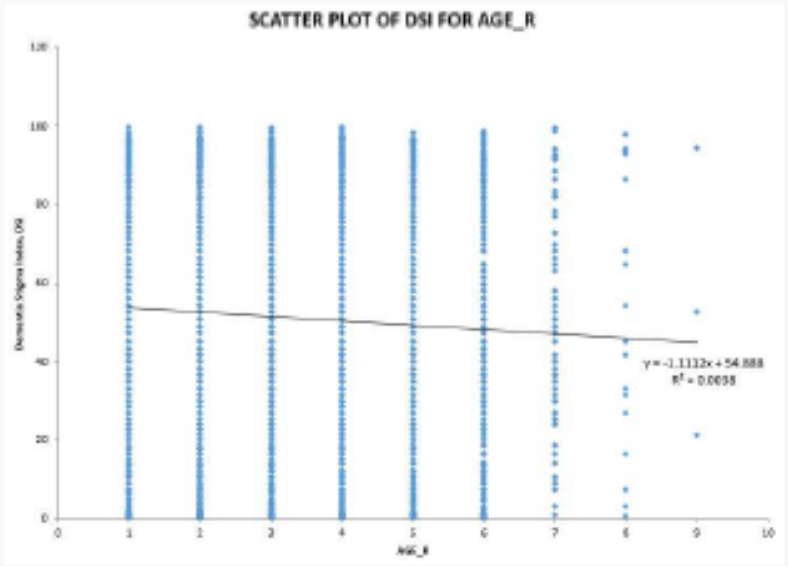
$$r = \frac{361674.3546 - \frac{(54081)(180.3058667)}{27}}{\sqrt{(108325881 - \frac{2924754561}{27})(1374.46216 \quad \frac{32510.20555}{27})}}$$

= 0.987545271985751
= 0.9875 (rounded off to 4 s.f.)

r^2 = 0.975245664
= 97.5246% (rounded off to 4 s.f.)

DSIA2. Show if evidence exists of a relationship between DSI and AGE_R (original), providing full statistics.

AGE_R	
1	<21
2	21≤ x <30
3	30≤ x <40
4	40≤ x <50
5	50≤ x <60
6	60≤ x <70
7	70≤ x <80
8	80≤ x <90
9	>90



Regression Statistics								
Multiple R	0.0614							
R Square	0.0038							
Adjusted R Square	0.0036							
Standard Error	28.3274							
Observations	5679							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	17228.4463	17228.4463	21.4701	0.0000			
Residual	5677	4555448.1886	802.4393					
Total	5678	4572676.6349						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95%*	*Upper 95%*
Intercept	54.8879	0.8144	67.3955	0.0000	53.2914	56.4845	53.2914	56.48450
AGE_R	-1.1112	0.2398	-4.6336	0.0000	-1.5813	-0.6411	-1.5813	-0.64107

The scatterplot shows an almost negligible linear relationship between DSI and AGE_R.

Since r = 0.0614 is much closer to 0 than 1, there is very weak linear correlation between relationship between DSI and age. Since r^2 = 0.0038, which means that only 0.38% of the variation in the DSI is explained by the variability of age while 99.62% of the variability in the DSI is due to others factors not present in the regression model.

Let p be the true linear correlation coefficient between DSI and age.

H_0: p =0

H_1: p ≠ 0

From the regression ANOVA, p-value = 0.0000. Since p-value is small, we have strong evidence that there is a significant relationship between DSI and age.