Measuring psychological safety as a group characteristic
— Examining the influence of different item references —

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Psychological safety is a shared belief among members that they feel safe in their teams to take interpersonal risks and has been proposed as a team-level construct. In this study, the Edmondson's scale (1999), the most frequently used in research, was examined for issues of including items referring both 'you' and 'people of this team.' Using data collected from individuals working in Japanese companies through an online survey, a comparison was made between individuals' responses about the state of their workplace (workplace psychological safety) and their own state at work (individual psychological safety). The results showed that individual psychological safety tended to be more highly evaluated than workplace psychological safety, and furthermore, workplace diversity had an impact on workplace psychological safety but not on individual psychological safety. Based on the above, it is appropriate to use items referring teams when measuring psychological safety at the team level. A number of psychological safety studies have already been conducted, but it will need to be taken into consideration that the results might include a certain amount of individual-based responses.

Previous studies and hypotheses

- **Group-level measurement**
  - How to measure the psychological characteristics of groups is mainly discussed in research related to organizational climate and culture (Schneider et al, 2013; Schneider et al, 2017)
  - *The referent-shift-consensus model* is recommended for measuring organizational climate (Chan, 1998).
  - When measuring workplace characteristics, items that refer to 'workplace' rather than 'I' are more conceptually appropriate and improve consensus (LeBreton & Senter, 2008)
  - In a meta-analysis of organizational fairness studies, measurement by 'we' was more relevant to organizational performance than when measured by 'I.' (Whitman et al, 2012)

- **Characteristics of items referring to self**
  - Individuals tend to think of themselves as better than average others (better than average; Zell et al, 2020), and to have an inflated evaluation of self (Moore & Healy, 2008) ➡ Tendency to feel that they are in a more favorable situation compared to others

- **Effects of diversity**
  - When reasoning about others' opinions and attitudes, if they are similar to you, you use yourself as a reference, but if they are different from you, you do not use yourself as a reference (Tamir & Mitchell, 2013)

	High diversity	Low diversity
Individual psychological safety	Use yourself as a reference	Use yourself as a reference
Workplace psychological safety	Do not use yourself as a reference	Use yourself as a reference

- **Hypotheses of this study**

H1: Individual psychological safety and workplace psychological safety are different, with the former showing higher values

H2: Individual psychological safety will be more strongly related with individual characteristics and workplace psychological safety will be more so with workplace characteristics.

H3: Workplace psychological safety will tend to be lower than individual psychological safety in more diverse workplaces

Method

- Internet survey of 783 full-time white-collar workers in March 2020
  - targets: 22 to 59 years old; number of employees is 300 or more; number of people who constantly work together in workplace is 5 to 30; 59.5% male; 28.6% in the manufacturing industry; 37.4% in 300 to 999 employees, 40.1% in 1,000 to 9,999 employees, 22.5% in 10,000 or more employees.

Table 1. Number of items, reliability, and example items for variables used

Variables		n of items	α	example
psycholo-gical safety (PS)	workplace PS	11	0.83	If someone makes a mistake on this workplace, it is often held against him/her (R)/Members of my workplace can raise issues and start difficult discussions.
	individual PS	11	0.77	If I make a mistake on this workplace, it is often held against me. (R)/I can raise issues and strat difficult discussions at my workplace
Variables related to PS	workplace diversity	3	0.78	Large variation in willingness and motivation to work / Large variation in the values that are important to the work process
	job autonomy	5	0.81	I can change the procedures and methods of my work at my discretion / I am free to change the pace of my work
	proactive	9	0.89	I always have my own ideas about how to get the job done / I am more committed than others to getting the job done

* All variables are measured with 6-point likert scale

Results

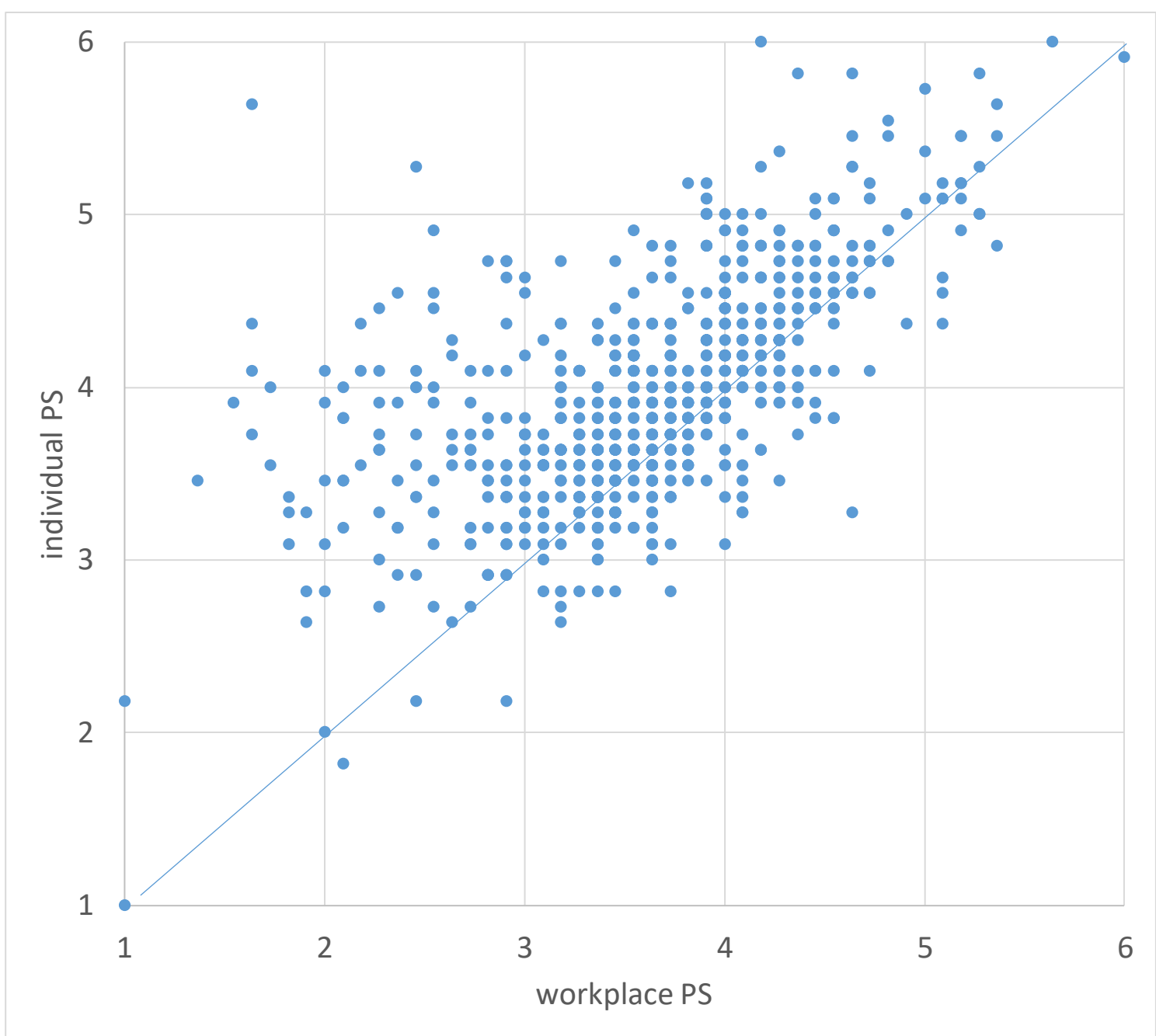Figure 1. Relationship between two types of psychological safety (n=738)

Table 2. Correlations and descriptive statistics (n=738)

	workplace PS	individual PS	workplace diversity	job autonomy	proactive
workplace PS	3.62 (0.72)				
individual PS	.62**	3.96 (0.63)			
workplace diversity	-.34**	-.07	4.08 (0.95)		
job autonomy	.35**	.52**	.08*	3.78 (0.86)	
proactive	.22**	.44**	.16**	.51**	3.80 (0.81)

** p<0.01 , * p<0.05
Diagonal values are mean (standard deviation)

Figure 2-1. Relationship between two types of psychological safety in **low** diversity workplace (n=411)
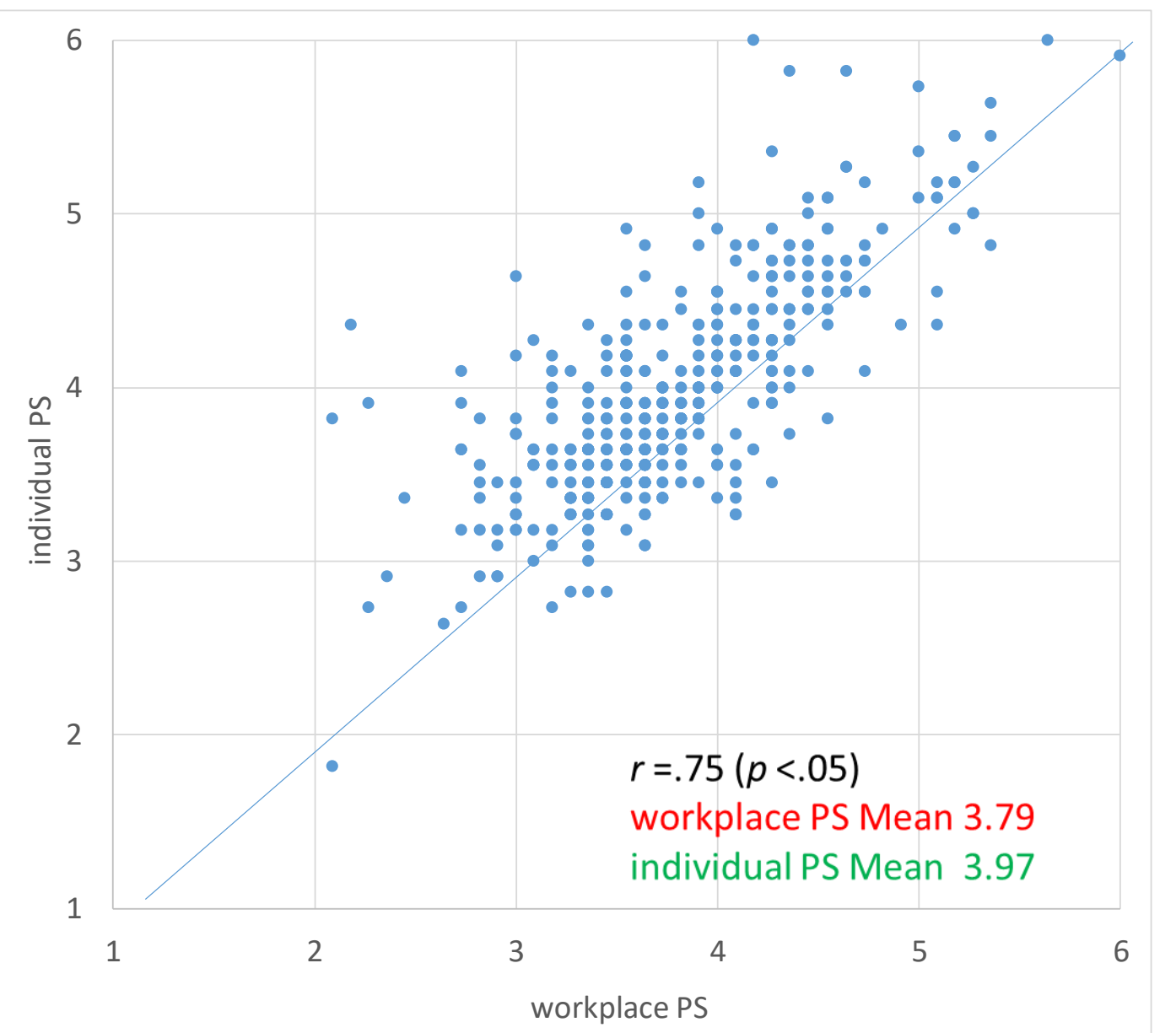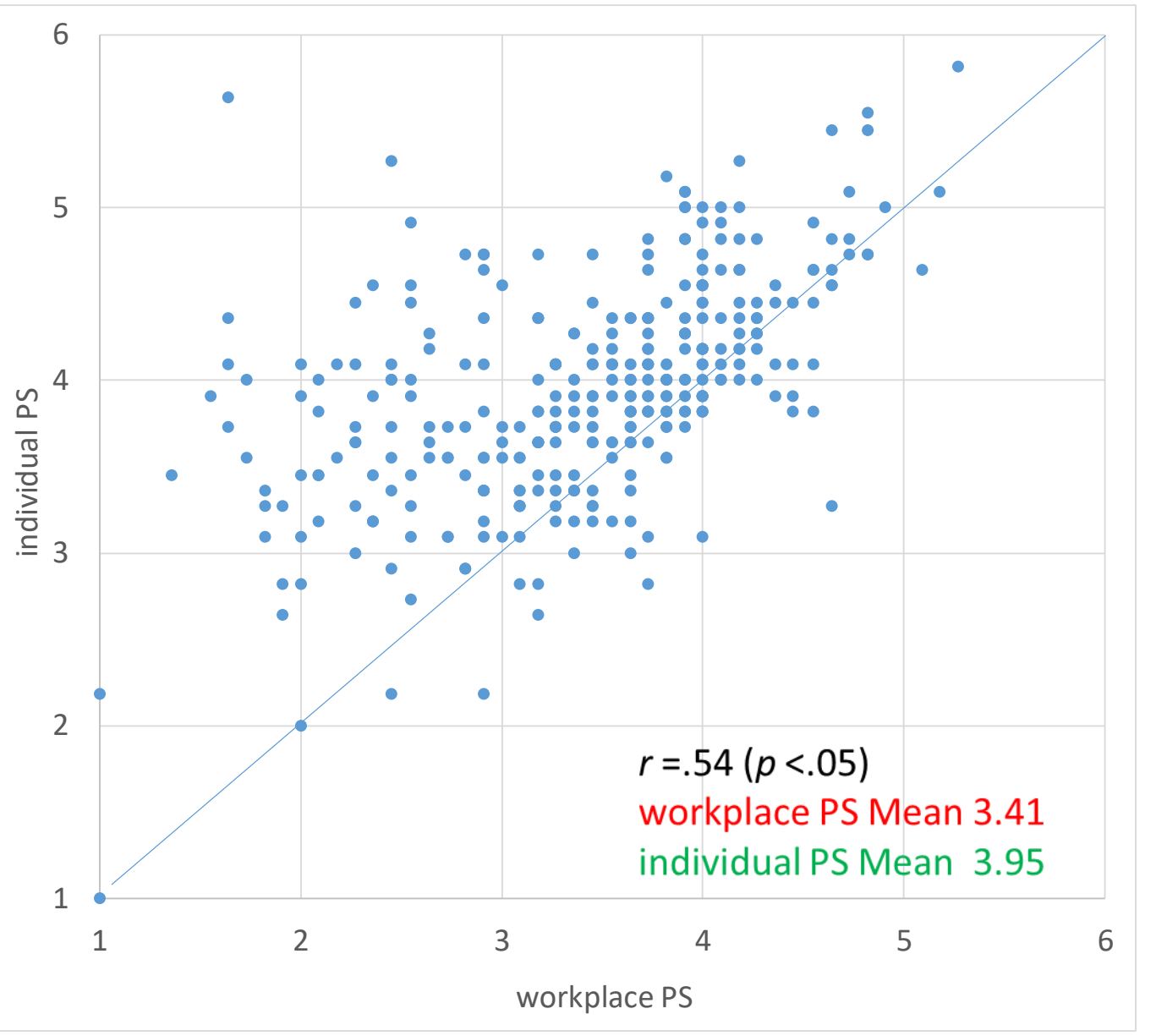

r =.75 (p <.05)
workplace PS Mean 3.79
individual PS Mean 3.97

Figure 2-2. Relationship between two types of psychological safety in **high** diversity workplace (n=327)

r =.54 (p <.05)
workplace PS Mean 3.41
individual PS Mean 3.95

- Individual PS (M=3.96) was significantly higher than workplace PS (M=3.62), and correlation between the two is significant (r=0.62), but not high enough to say that they were measuring the same construct ➡ H1 supported
- Table 2 shows that individual PS was more strongly correlated with job autonomy and proactiveness than workplace PS, while workplace diversity was correlated only with workplace PS ➡H2 supported
- Individual PS mean did not differ in workplaces with high diversity from in workplaces with low diversity (M=3.95, 3.97 for each, p=0.54). But workplace PS mean with high diversity was lower than that with low diversity (M=3.41, 3.79 for each, p<0.001). Also, the correlation between the two was higher for high psychological safety compared to low psychological safety ➡H3 supported

Discussion

- Workplace psychological safety and individual psychological safety are moderately to highly correlated but do not measure the same thing.
- Better-than-average effect was found in individual psychological safety.
- Increased workplace diversity decreases workplace psychological safety but does not affect individual psychological safety.
- It is appropriate to use the items referring the 'group' or 'team' in measuring group-level psychological safety.
- As workplace diversity increases, there seems to be a tendency for workplace members to feel that they are safe but not the other members.
- The Frazier et al.'s (2017) meta-analysis reports an estimated correlation of 0.35 between proactive personality traits and psychological safety, which may reflect, at least in part, the individual psychological safety. This suggests that collecting highly proactive individuals may not increase psychological safety in the workplace.
- In the future, collecting data in specific workplaces, I would like to see the impact of item references on consensus.

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