

Supplementary Table 1. Methodological quality of the intervention studies according to ROBINS I V2 tool

Autor and year	D1	D2	D3	D4	D5	D6	Overall
Kanojia <i>et al.</i> , 2024 (21)	M	L	S	L	S	L	S
Patel <i>et al.</i> , 2024 (26)	S	L	S	L	S	L	S
Shubham <i>et al.</i> , 2024 (28)	M	L	M	L	S	L	S
Taati <i>et al.</i> , 2024 (29)	M	L	M	M	S	L	S
Thakker <i>et al.</i> , 2024 (30)	M	L	S	L	S	L	S
Alzaharani <i>et al.</i> , 2023 (31)	M	M	M	L	M	L	M
Nosheen <i>et al.</i> , 2023 (35)	S	L	S	L	S	L	S
Aydin <i>et al.</i> , 2022 (36)	L	L	M	M	M	L	M
Altuntas <i>et al.</i> , 2021 (43)	M	L	M	L	M	L	M
Pilla <i>et al.</i> , 2020 (48)	M	L	M	L	S	L	S
Purbey <i>et al.</i> , 2020 (49)	M	L	M	L	S	L	S
Akkermans <i>et al.</i> , 2018 (54)	M	L	M	M	M	L	M
Eser <i>et al.</i> , 2018 (55)	M	L	M	L	S	L	S
Madhu <i>et al.</i> , 2017 (59)	L	L	S	M	L	L	S
Nasli-Esfahani <i>et al.</i> , 2017 (60)	L	L	M	L	M	L	M
Sinha <i>et al.</i> , 2012 (68)	M	L	M	L	S	L	S
Coban <i>et al.</i> , 2004 (72)	M	L	S	L	S	L	S
El-Agouza <i>et al.</i> , 2002 (37)	S	L	S	L	S	L	S
Tarim <i>et al.</i> , 1999 (73)	S	L	S	M	M	L	S

D1 - Bias due to confounding: 3 studies presented low risk of bias because they reported the exclusion of patients with non-iron deficiency anemia, chronic kidney disease, and inflammatory and/or elevated C-reactive protein concentrations. 12 studies presented moderate risk of bias because they reported the exclusion of one or two of these conditions. 4 studies presented high risk of bias because they did not report the exclusion of none of these conditions. D2 - Bias in classification of interventions: 18 studies presented low risk of bias because they carried out iron treatment following a rigorous protocol that defined the dosage and duration of the treatment. 1 study presented moderate risk of bias because it retrospectively reviewed medical records and there was substantial variation in the iron treatment in terms of dosage and duration of the treatment. D3 - Bias in selection of participants into the study: 11 studies presented moderate risk of bias because the diagnosis of iron deficiency anemia and latent iron deficiency were made according to World Health Organization criteria or hemoglobin and ferritin concentrations (59, 60). 8 studies presented serious risk of bias because the diagnosis of iron deficiency anemia and latent iron deficiency were not made according to World Health Organization criteria for hemoglobin or ferritin concentrations. D4 - Bias due to missing data: 14 studies presented low risk of bias because they reported complete data for all recruited participants or presented minimal losses. 5 studies presented moderate risk of bias because there were losses to follow-up or exclusions of participants who started the intervention protocol. D5 - Bias in measurement of outcomes: 1 study presented low risk of bias because it used an HPLC method certified by NGSP/IFCC for HbA1c measurement. 6 studies presented moderate risk of bias because they used HPLC but did not report NGSP/IFCC certification. 12 studies presented serious risk of bias because they used methods other than HPLC or did not report the method used for HbA1c measurement and did not report NGSP/IFCC certification.

D6 - Bias in selection of the reported result: 19 studies presented low risk of bias because there was no evidence of selective reporting of results.

Supplementary Table 2: Methodological quality of the cross-sectional studies according to Newcastle Ottawa Scale adapted to cross-sectional studies

Author, year	Selection			Comparability		Outcome		Total
	1	2	3	4	5	6	7	
Mukasa et al., 2026 (14)		*			*			2
Tedong et al., 2026 (15)		*	*		*		*	3
Deepali et al., 2025 (16)		*			*	*	*	4
Koga e Ishibashi, 2025 (17)		*				*		2
Dutta et al., 2024 (18)		*	*	*	*	**	*	7
Firat et al., 2024 (19)		*			*	*	*	4
Haseena et al., 2024 (20)		*			*		*	3
Kesharwani et al., 2024 (22)		*			*	*	*	4
Krishnan et al., 2024 (23)				*	*		*	3
Kumar et al., 2024 (24)		*			*		*	3
Nakum et al., 2024 (25)		*					*	2
Suvethasri et al., 2024 (27)		*			*		*	3
Elsheikh et al., 2023 (32)		*		*	*			3
Gharde et al., 2023 (33)		*			*		*	3
Kumar et al., 2023 (34)		*	*		*	*	*	5
Estrella et al., 2022 (38)	*	*			*	*	*	5
Janice et al., 2022 (39)					*		*	2
Jyothsna et al., 2022 (40)		*	*		**	*	*	6
Pradeepa et al., 2022 (41)		*			*	*	*	4
Rao et al., 2022 (42)		*						1
Satriawibawa et al., 2022 (67)		*	*		**		*	5
Kanchana e Pushpa, 2021 (45)		*			*		*	3
Bindayel, 2020 (44)		*			*	*	*	4
Lyons et al., 2020 (46)	*	*			*	*	*	5
Mahgoob e Moussa, 2020 (47)		*			*		*	3
Sabitha et al., 2020 (50)		*	*		*	*	*	5
Wei et al., 2019 (53)	*	*				*	*	4
Hashimoto e Koga, 2018 (56)		*			*	**		4
Intra et al., 2018 (51)		*			**	**		5
Intra et al., 2018 (57)		*			**	**		5
Urrechaga, 2018 (58)		*			*	*	*	4
Rajagopal et al., 2017 (61)		*		*	*	*	*	5
Silva et al., 2016 (52)		*		*		**	*	5
Attard et al., 2015 (62)	*	*		*		*	*	5
Hong et al., 2015 (63)	*	*		*		*	*	5
Christy et al., 2014 (64)		*			*	*	*	4
Shanti et al., 2013 (8)		*			*		*	3
Hardikar et al., 2012 (65)		*		*		**	*	5
Rafat et al., 2012 (66)		*			*	*	*	4
Ford et al., 2011 (69)	*	*				*		3
Kim et al., 2010 (70)	*	*			*	**	*	6
Koga et al., 2010 (71)		*				*	*	3

1 - Representativeness of the sample: 7 studies received one star because the sample was truly representative of the average in the target population/it was performed a random-sampling. 35 studies did not receive a star because the sample was a selected group of users. 2 - Selection of controls: 41 studies received one star because community controls without iron deficiency anemia and/or latent iron deficiency were included. 1 study did not receive a star because of an absence of control group without iron deficiency anemia and/or latent iron deficiency. 3 - Sample size: 6 studies received one star because sample size was justified and satisfactory. 36 studies did not receive a star because sample size was not justified. 4 - Diagnose: 8 studies received one star because the diagnosis of iron deficiency anemia and latent iron deficiency were made according to World Health Organization criteria (59, 60) for hemoglobin and ferritin concentrations. 32 studies did not receive a star because the diagnosis of iron deficiency anemia and latent iron deficiency were not made according to World Health Organization criteria (59, 60) for hemoglobin and ferritin concentrations. 5 - Comparability: 4 studies received two stars because they reported the exclusion of patients with non-iron deficiency anemia, chronic kidney disease, and inflammatory and/or elevated C-reactive protein concentrations. 28 studies received one star because they reported the exclusion of one or two of these conditions. 10 studies did not receive a star because they did not report the exclusion of none of these conditions. 6 - Accuracy of the method used to HbA1c measurement: 7 studies received two stars because they used an NGSP/IFCC-certified method to HbA1c measurement. 20 studies received one star because they used HPLC without reporting NGSP/IFCC certification to HbA1c measurement. 15 studies did not receive a star because they did not use HPLC or a NGSP/IFCC-certified method to HbA1c measurement. 7 - Statistical test: 34 studies received

one star because the statistical test used to analyze the data is clearly described and appropriate, and the statistical measures were reported. 8 studies did not receive a star because they did not present the standard deviation.