

S3 (a) Table. Measurement model multi-group analysis on the relationship between work-related psychosocial factors, and common mental symptoms among health workers in Central and Southern Ethiopia Region, 2023.

					95% Confidence Intervals		β	β 95% Confidence Intervals				Communality (R ²)	Reliability, and validity statistics	
Group	Latent	Observed	Estimate	SE	Lower	Upper		Lower	Upper	z	p		Ordinal Cronbach's alpha	Average Variance Extracted (AVE)
Male														
	JE	ERI1	1.000	0.000	1.000	1.000	0.924	0.826	1.023			0.443	0.765	0.539
		ERI2	0.720	0.079	0.565	0.875	0.666	0.579	0.753	9.10	< .001	0.318		
		ERI3	0.610	0.073	0.468	0.752	0.564	0.468	0.660	8.42	< .001	0.381		
	JR	ERI4	1.000	0.000	1.000	1.000	0.617	0.566	0.669			0.561	0.925	0.659
		ERI5	1.213	0.058	1.101	1.326	0.749	0.711	0.786	21.11	< .001	0.618		
		ERI6	1.274	0.058	1.159	1.388	0.786	0.751	0.821	21.87	< .001	0.602		
		ERI7	1.257	0.061	1.137	1.376	0.776	0.739	0.813	20.63	< .001	0.767		
		ERI8	1.419	0.063	1.296	1.543	0.876	0.853	0.899	22.52	< .001	0.883		
		ERI9	1.523	0.068	1.390	1.655	0.940	0.921	0.959	22.55	< .001	0.801		
		ERI10	1.450	0.067	1.320	1.581	0.895	0.870	0.920	21.74	< .001			
	WFC	WFCt1	1.000	0.000	1.000	1.000	0.841	0.813	0.869			0.707	0.930	0.742
		WFCt2	0.990	0.021	0.948	1.032	0.832	0.806	0.859	46.29	< .001	0.693		

		WFCs1	1.069	0.022	1.026	1.113	0.899	0.878	0.921	48.56	<.001	0.809		
		WFCs2	1.057	0.022	1.014	1.100	0.889	0.867	0.911	48.42	<.001	0.791		
		WFCb1	1.027	0.022	0.984	1.070	0.864	0.838	0.889	47.15	<.001	0.746		
		WFCb2	1.000	0.026	0.950	1.051	0.841	0.810	0.873	38.81	<.001	0.708		
	JD	JD1	1.000	0.000	1.000	1.000	0.865	0.825	0.906			0.749	0.897	0.741
		JD2	1.084	0.041	1.004	1.163	0.938	0.903	0.973	26.67	<.001	0.880		
		JD3	0.892	0.033	0.826	0.957	0.772	0.727	0.816	26.79	<.001	0.595		
	DL	DL2	1.000	0.000	1.000	1.000	0.690	0.628	0.751			0.476	0.787	0.569
		DL3	1.006	0.061	0.887	1.126	0.694	0.634	0.755	16.50	<.001	0.482		
		DL4	1.336	0.076	1.188	1.485	0.922	0.864	0.980	17.60	<.001	0.850		
		DL5	1.094	0.065	0.967	1.220	0.754	0.708	0.801	16.93	<.001	0.569		
		DL6	0.994	0.062	0.873	1.115	0.686	0.638	0.734	16.10	<.001	0.471		
	JAS	JAS1	1.000	0.000	1.000	1.000	0.835	0.804	0.865			0.697	0.972	0.719
		JAS2	0.980	0.023	0.935	1.025	0.818	0.786	0.850	42.60	<.001	0.669		
		JAS3	1.029	0.022	0.986	1.071	0.859	0.832	0.886	47.15	<.001	0.738		
		JAS4	0.913	0.025	0.865	0.962	0.763	0.729	0.796	36.87	<.001	0.582		
		JAS5	0.933	0.024	0.886	0.979	0.779	0.747	0.810	39.47	<.001	0.606		
		JAS6	0.914	0.024	0.867	0.961	0.763	0.729	0.797	38.14	<.001	0.582		
		JAS7	1.091	0.021	1.049	1.132	0.910	0.892	0.929	51.36	<.001	0.829		
		JAS8	1.085	0.021	1.044	1.127	0.906	0.886	0.926	51.12	<.001	0.821		
		JAS9	1.097	0.021	1.056	1.138	0.916	0.900	0.932	52.33	<.001	0.839		
		JAS10	1.076	0.020	1.036	1.115	0.898	0.878	0.918	53.61	<.001	0.807		

		JAS11	1.048	0.022	1.005	1.091	0.875	0.850	0.899	47.97	<.001	0.765		
		JAS12	1.069	0.020	1.030	1.108	0.893	0.871	0.914	54.30	<.001	0.797		
		JAS13	1.025	0.021	0.984	1.067	0.856	0.830	0.882	48.33	<.001	0.733		
		JAS14	0.896	0.024	0.850	0.943	0.748	0.713	0.784	37.60	<.001	0.560		
		JAS15	1.043	0.020	1.005	1.082	0.871	0.845	0.897	52.94	<.001	0.759		
	POS	POS1	1.000	0.000	1.000	1.000	0.835	0.808	0.863			0.698	0.928	0.783
		POS2	1.091	0.021	1.050	1.132	0.911	0.893	0.930	52.45	<.001	0.831		
		POS3	1.139	0.021	1.098	1.180	0.952	0.935	0.968	54.08	<.001	0.905		
		POS4	1.000	0.022	0.956	1.043	0.835	0.808	0.861	44.99	<.001	0.697		
	ODI	ODI1	1.000	0.000	1.000	1.000	0.815	0.779	0.851			0.664	0.955	0.711
		ODI2	1.026	0.028	0.971	1.082	0.836	0.802	0.870	36.20	<.001	0.699		
		ODI3	1.000	0.029	0.943	1.057	0.815	0.781	0.849	34.63	<.001	0.664		
		ODI4	0.937	0.028	0.882	0.993	0.764	0.727	0.801	33.16	<.001	0.584		
		ODI5	1.021	0.030	0.962	1.080	0.832	0.796	0.868	33.95	<.001	0.692		
		ODI6	1.050	0.030	0.991	1.109	0.856	0.819	0.892	34.93	<.001	0.732		
		ODI7	1.090	0.028	1.036	1.145	0.889	0.861	0.916	39.30	<.001	0.790		
		ODI8	1.029	0.031	0.969	1.089	0.838	0.803	0.873	33.53	<.001	0.703		
		ODI9	1.146	0.076	0.997	1.294	0.934	0.822	1.045	15.09	<.001	0.872		
	SS	SS1	1.000	0.000	1.000	1.000	0.634	0.586	0.682			0.402	0.936	0.726
		SS2	1.349	0.050	1.251	1.447	0.855	0.832	0.877	26.94	<.001	0.731		
		SS3	1.462	0.058	1.348	1.575	0.927	0.908	0.945	25.28	<.001	0.859		
		SS4	1.382	0.054	1.277	1.488	0.876	0.856	0.897	25.62	<.001	0.768		

		SS5	1.395	0.056	1.285	1.506	0.885	0.863	0.906	24.75	< .001	0.783		
		SS6	1.424	0.056	1.315	1.533	0.903	0.887	0.918	25.57	< .001	0.815		
Female														
	JE	ERI1	1.000	0.000	1.000	1.000	0.852	0.749	0.955			0.726	0.793	0.562
		ERI2	0.901	0.098	0.709	1.094	0.768	0.669	0.866	9.17	< .001	0.589		
		ERI3	0.715	0.091	0.537	0.893	0.609	0.503	0.716	7.88	< .001	0.371		
	JR	ERI4	1.000	0.000	1.000	1.000	0.653	0.592	0.715			0.427	0.923	0.664
		ERI5	1.117	0.062	0.995	1.240	0.730	0.679	0.781	17.91	< .001	0.533		
		ERI6	1.251	0.063	1.128	1.373	0.817	0.780	0.854	19.99	< .001	0.668		
		ERI7	1.189	0.068	1.055	1.323	0.777	0.731	0.822	17.38	< .001	0.603		
		ERI8	1.338	0.067	1.208	1.469	0.874	0.845	0.904	20.09	< .001	0.765		
		ERI9	1.457	0.074	1.312	1.602	0.952	0.930	0.974	19.67	< .001	0.906		
		ERI10	1.322	0.067	1.190	1.453	0.864	0.834	0.893	19.71	< .001	0.746		
	WFC	WFCt1	1.000	0.000	1.000	1.000	0.821	0.781	0.862			0.675	0.911	0.689
		WFCt2	0.898	0.037	0.826	0.970	0.738	0.691	0.785	24.38	< .001	0.544		
		WFCs1	1.090	0.033	1.027	1.154	0.896	0.868	0.924	33.48	< .001	0.802		
		WFCs2	1.035	0.036	0.964	1.106	0.850	0.814	0.886	28.49	< .001	0.723		
		WFCb1	1.017	0.032	0.954	1.079	0.835	0.800	0.870	32.03	< .001	0.697		
		WFCb2	1.011	0.037	0.938	1.084	0.830	0.788	0.873	27.23	< .001	0.690		
	JD	JD1	1.000	0.000	1.000	1.000	0.823	0.769	0.877			0.677	0.895	0.748
		JD2	1.135	0.054	1.029	1.242	0.934	0.894	0.975	20.86	< .001	0.873		
		JD3	1.012	0.051	0.913	1.111	0.833	0.781	0.885	19.97	< .001	0.694		

	DL	DL2	1.000	0.000	1.000	1.000	0.804	0.733	0.875			0.647	0.805	0.566
		DL3	0.858	0.062	0.737	0.979	0.690	0.618	0.762	13.89	<.001	0.476		
		DL4	1.164	0.071	1.025	1.302	0.936	0.864	1.008	16.43	<.001	0.876		
		DL5	0.826	0.063	0.704	0.948	0.664	0.596	0.733	13.22	<.001	0.441		
		DL6	0.780	0.059	0.664	0.895	0.627	0.560	0.694	13.24	<.001	0.393		
	JAS	JAS1	1.000	0.000	1.000	1.000	0.832	0.796	0.868			0.692	0.972	0.717
		JAS2	0.965	0.024	0.919	1.011	0.803	0.764	0.841	40.91	<.001	0.644		
		JAS3	1.015	0.027	0.963	1.068	0.844	0.811	0.878	37.91	<.001	0.713		
		JAS4	0.943	0.028	0.889	0.997	0.784	0.747	0.822	34.13	<.001	0.615		
		JAS5	0.951	0.028	0.897	1.005	0.791	0.752	0.829	34.43	<.001	0.625		
		JAS6	0.949	0.028	0.895	1.003	0.789	0.752	0.827	34.54	<.001	0.623		
		JAS7	1.090	0.025	1.041	1.138	0.906	0.884	0.928	44.14	<.001	0.821		
		JAS8	1.104	0.025	1.055	1.152	0.918	0.899	0.937	44.51	<.001	0.842		
		JAS9	1.121	0.024	1.074	1.168	0.932	0.915	0.949	46.65	<.001	0.869		
		JAS10	1.061	0.026	1.010	1.112	0.883	0.856	0.909	40.84	<.001	0.779		
		JAS11	1.053	0.023	1.007	1.099	0.875	0.850	0.901	44.92	<.001	0.766		
		JAS12	1.023	0.025	0.974	1.072	0.851	0.820	0.882	40.93	<.001	0.724		
		JAS13	1.055	0.024	1.008	1.102	0.877	0.850	0.905	44.11	<.001	0.770		
		JAS14	0.874	0.029	0.818	0.930	0.727	0.680	0.774	30.36	<.001	0.528		
		JAS15	1.033	0.027	0.981	1.086	0.859	0.825	0.893	38.62	<.001	0.738		
	POS	POS1	1.000	0.000	1.000	1.000	0.823	0.789	0.857			0.678	0.920	0.774
		POS2	1.088	0.027	1.036	1.141	0.896	0.871	0.921	40.74	<.001	0.803		

		POS3	1.123	0.027	1.070	1.175	0.924	0.902	0.947	42.10	<.001	0.854		
		POS4	1.060	0.031	1.000	1.120	0.872	0.839	0.906	34.60	<.001	0.761		
	ODI	ODI1	1.000	0.000	1.000	1.000	0.791	0.750	0.831			0.625	0.960	0.720
		ODI2	1.049	0.031	0.988	1.109	0.829	0.794	0.864	34.21	<.001	0.687		
		ODI3	0.994	0.032	0.932	1.056	0.786	0.745	0.827	31.57	<.001	0.618		
		ODI4	1.009	0.030	0.951	1.067	0.798	0.761	0.834	34.18	<.001	0.636		
		ODI5	1.077	0.034	1.009	1.144	0.851	0.815	0.888	31.27	<.001	0.725		
		ODI6	1.101	0.032	1.038	1.165	0.871	0.837	0.904	33.97	<.001	0.758		
		ODI7	1.116	0.033	1.052	1.179	0.882	0.850	0.914	34.33	<.001	0.778		
		ODI8	1.086	0.034	1.019	1.152	0.859	0.825	0.892	32.02	<.001	0.737		
		ODI9	1.208	0.065	1.082	1.335	0.955	0.871	1.040	18.73	<.001	0.913		
	SS	SS1	1.000	0.000	1.000	1.000	0.591	0.523	0.659			0.349	0.941	0.745
		SS2	1.537	0.091	1.358	1.715	0.908	0.889	0.927	16.86	<.001	0.824		
		SS3	1.543	0.093	1.360	1.726	0.912	0.892	0.932	16.54	<.001	0.831		
		SS4	1.528	0.090	1.351	1.705	0.903	0.883	0.923	16.92	<.001	0.815		
		SS5	1.524	0.091	1.347	1.702	0.901	0.876	0.925	16.83	<.001	0.811		
		SS6	1.552	0.092	1.371	1.733	0.917	0.900	0.934	16.81	<.001	0.841		

S3 (b) Table. Indirect effect of work-related psychosocial factors on common mental health symptoms (occupational stress, occupational depression, and job anxiety), among health workers in Central Ethiopia and Southern Ethiopia Region, February 2023

					95% Confidence Intervals			β 95% Confidence Intervals			
Label	Description	Parameter	Estimate	SE	Lower	Upper	β	Lower	Upper	z	p
IE1	(JD ⇒ SS ⇒ JAS) ₁	p79*p64	0.010	0.01	-0.011	0.030	0.010	-0.011	0.031	0.93	0.350
IE2	(JD ⇒ SS ⇒ POS) ₁	p79*p70	0.003	0.004	-0.004	0.011	0.003	-0.004	0.011	0.92	0.360
IE3	(JD ⇒ SS ⇒ ODI) ₁	p79*p76	0.007	0.007	-0.007	0.020	0.007	-0.008	0.022	0.93	0.352
IE4	(DL ⇒ SS ⇒ JAS) ₁	p81*p64	0.001	0.011	-0.020	0.022	0.001	-0.017	0.019	0.11	0.914
IE5	(DL ⇒ SS ⇒ POS) ₁	p81*p70	0.000	0.004	-0.007	0.008	0.000	-0.006	0.006	0.11	0.914
IE6	(DL ⇒ SS ⇒ ODI) ₁	p81*p76	0.001	0.007	-0.014	0.015	0.001	-0.012	0.013	0.11	0.914
IE7	(JR ⇒ SS ⇒ JAS) ₁	p78*p64	-0.035	0.014	-0.063	-0.008	-0.026	-0.047	-0.006	-2.51	0.012
IE8	(JR ⇒ SS ⇒ POS) ₁	p78*p70	-0.012	0.007	-0.026	0.001	-0.009	-0.019	0.001	-1.78	0.075
IE9	(JR ⇒ SS ⇒ ODI) ₁	p78*p76	-0.024	0.009	-0.043	-0.005	-0.018	-0.032	-0.004	-2.53	0.011
IE10	(JE ⇒ SS ⇒ JAS) ₁	p77*p64	-0.001	0.009	-0.019	0.016	-0.001	-0.021	0.018	-0.14	0.885
IE11	(JE ⇒ SS ⇒ POS) ₁	p77*p70	0.000	0.003	-0.007	0.006	-0.001	-0.007	0.006	-0.14	0.886
IE12	(JE ⇒ SS ⇒ ODI) ₁	p77*p76	-0.001	0.006	-0.013	0.011	-0.001	-0.015	0.013	-0.14	0.885
IE13	(WFC ⇒ SS ⇒ JAS) ₁	p80*p64	0.028	0.01	0.008	0.048	0.028	0.008	0.048	2.77	0.006
IE14	(WFC ⇒ SS ⇒ POS) ₁	p80*p70	0.010	0.005	-0.001	0.020	0.010	-8.08e-4	0.021	1.81	0.070
IE15	(WFC ⇒ SS ⇒ ODI) ₁	p80*p76	0.019	0.007	0.005	0.033	0.020	0.005	0.034	2.59	0.010
IE16	(JD ⇒ SS ⇒ JAS) ₂	p563*p548	0.024	0.013	0.000	0.049	0.024	-2.48e-4	0.048	1.94	0.053
IE17	(JD ⇒ SS ⇒ POS) ₂	p563*p554	0.021	0.01	0.001	0.042	0.021	0.001	0.042	2.03	0.042

IE18	(JD $\Rightarrow$ SS $\Rightarrow$ ODI) ₂	p563*p560	0.021	0.01	0.001	0.040	0.021	0.001	0.042	2.06	0.039
IE19	(DL $\Rightarrow$ SS $\Rightarrow$ JAS) ₂	p565*p548	-0.007	0.01	-0.026	0.011	-0.007	-0.025	0.011	-0.78	0.435
IE20	(DL $\Rightarrow$ SS $\Rightarrow$ POS) ₂	p565*p554	-0.007	0.009	-0.023	0.010	-0.006	-0.023	0.010	-0.77	0.442
IE21	(DL $\Rightarrow$ SS $\Rightarrow$ ODI) ₂	p565*p560	-0.006	0.008	-0.022	0.010	-0.006	-0.023	0.010	-0.78	0.434
IE22	(JR $\Rightarrow$ SS $\Rightarrow$ JAS) ₂	p562*p548	-0.021	0.014	-0.047	0.006	-0.016	-0.037	0.005	-1.52	0.129
IE23	(JR $\Rightarrow$ SS $\Rightarrow$ POS) ₂	p562*p554	-0.018	0.012	-0.041	0.005	-0.014	-0.033	0.004	-1.54	0.125
IE24	(JR $\Rightarrow$ SS $\Rightarrow$ ODI) ₂	p562*p560	-0.017	0.011	-0.039	0.004	-0.014	-0.032	0.004	-1.56	0.118
IE25	(JE $\Rightarrow$ SS $\Rightarrow$ JAS) ₂	p561*p548	-0.002	0.009	-0.020	0.017	-0.002	-0.021	0.017	-0.17	0.866
IE26	(JE $\Rightarrow$ SS $\Rightarrow$ POS) ₂	p561*p554	-0.001	0.008	-0.018	0.015	-0.001	-0.018	0.015	-0.17	0.865
IE27	(JE $\Rightarrow$ SS $\Rightarrow$ ODI) ₂	p561*p560	-0.001	0.008	-0.017	0.014	-0.001	-0.018	0.015	-0.17	0.866
IE28	(WFC $\Rightarrow$ SS $\Rightarrow$ JAS) ₂	p564*p548	0.042	0.013	0.017	0.066	0.041	0.017	0.065	3.32	< .001
IE29	(WFC $\Rightarrow$ SS $\Rightarrow$ POS) ₂	p564*p554	0.037	0.013	0.011	0.062	0.037	0.011	0.062	2.83	0.005
IE30	(WFC $\Rightarrow$ SS $\Rightarrow$ ODI) ₂	p564*p560	0.035	0.011	0.013	0.058	0.037	0.014	0.060	3.15	0.002

Note 1: Description subscripts refer to groups, with 1= Male group, 2= Female group

Note 2: IE1 , Indirect Effect 1; JAS, Job Anxiety; POS; Perceived occupational stress, ODI; occupational depression inventory; JD, Job demand; DL, Decision Latitude; JE, Job Effort; JR, Job Reward; SS, Social support; and WFC, Work-family conflict

Note 3: In notations like P79 and P64: P⁷⁹ is the path coefficient from an exogenous variable (e.g., JD) to a mediator (SS); P⁴², represents the path coefficient from the mediator (SS) to an endogenous variable (JAS); P⁷⁹*P⁶⁴ represents the combined indirect effect of JD on JAS via SS; and the double arrows(e.g., "JD $\Rightarrow$ SS $\Rightarrow$ JAS") represents an indirect effect pathway where JD influence JAS via SS as a mediator.

Note 4: Like in any regression concept, an estimate is an unstandardized coefficient representing the raw strength of the effect between two variables in their original units, while β is a standardized coefficient in our SEM analysis.