

Article

The Impact of the Quality of Interpersonal Relationships between Employees on Counterproductive Work Behavior: A Study of Employees in Poland

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Abstract: The purpose of the article is to determine how the quality of interpersonal relationships at work (QIRW) affects the extent of counterproductive work behavior (CWB), and whether this impact is moderated by employees' demographic features (education, age, sex, length of service and type of work). These questions are particularly important for organizations that want to function sustainably, because counterproductive behavior also includes wasting resources, polluting the environment and using environmentally unfriendly products. The research objectives were met using a survey conducted in 2018 among 1488 professionally active people in Poland. Structural equation modeling (SEM) was used to analyze the empirical data. The proposed theoretical model was intended to determine how particular categories of relationship quality affect dimensions of CWB (which included taking into account employees' aforementioned demographic features). I determined that relationship quality has an inverse relationship with counterproductive behavior of employees (the higher the quality, the lower the propensity for CWB), but there are also many paradoxes that I discuss in detail. Moreover, this impact is significantly moderated by employees' demographic features (mainly education, type of work, length of service and sex). I also discuss the theoretical contributions, practical implications and limitations of this study, and directions for future research.

Keywords: quality of relationships at work; counterproductive work behaviors; counterproductive sustainability behaviors; demographic features

1. Introduction

The quality of interpersonal work relationships determines the behaviors that employees engage in both at work and in their private lives [1,2]. As a rule, high quality relationships translate beneficially into, among others: commitment, performance, motivation, innovation, error detection, OHS, employee green behaviors (EGB), teamwork, helping others, internal and external organizational communication, absenteeism, conflict and resilience to negative events. Conversely, low quality relationships between employees have a detrimental impact on these aspects of an organization's operation [3–9].

Therefore, counterproductive work behaviors (CWB) must also be influenced by the quality of interpersonal relationships at work. This is because these behaviors are influenced by the group [10,11] and are a behavioral (adaptive) response to certain workplace conditions [12,13].

This interrelationship is quite apparent, so, if these relationships are of a high quality, employees will tend less towards CWB. By the same reasoning, if relationship quality is low, counterproductive behaviors will be engaged in more often. In practice, however, there are many paradoxes, which is to say that negative relationships can have beneficial effects, while positive relationships can have detrimental effects (for the organization and its stakeholders) [14,15]. One such example is the case in

which high-quality work relationships increase the propensity for counterproductive behavior directed against a person. This can be explained by the fact that such relationships are characterized by more frequent interaction and higher trust, which provides more opportunities for abuse [16]. The research issue is thus very complex and is strongly influenced by situational conditions and the features of the employees themselves.

Thus far, the understanding of this relationship has tended to be based on intuition, and on research results that are scant at best, and that have been later cited by other authors as empirically confirmed paradigms [17]. The empirical studies on this topic are not comprehensive and focus on selected aspects of the impact of QIRW on CWB. For example: Skarlicki and Folger [18] investigated the impact of relationship quality on employee retaliation; Brass et al. [16] analyzed the impact of relationship quality on conspiracy; and Roberts [19] focused on the importance of relationship quality on, among others, work avoidance, the defensive behavior of personnel or the tendency to recognize one's own mistakes and to accept criticism. In turn, based on a meta-analysis of 161 articles, Chiaburu and Harrison [20] concluded that antagonisms between employees correlate negatively with job satisfaction, commitment and performance, and positively with absenteeism, the desire to leave work, staff turnover and CWB. Ragins and Verbos [21] also indicated a positive relationship between low relationship quality (understood as the exploitation of one party by another) and dysfunctional behaviors.

It is significant that researchers are more keen to examine the beneficial aspects of the quality of work relationships and the significance of this quality for organizational citizenship behavior (OCB), also in the field of sustainability (see, e.g., [9,22]). It is therefore no surprise that Colbert et al. [23] indicate the need to describe the effects of negative relationships at work. In turn, Bowler and Brass [24] recommend expanding our knowledge on how these relationships influence counterproductive behavior.

There is even sparser research on how CWB's relationship with QIRW is moderated by such key demographic features as employee sex, age, education, length of service and type of work. In essence, the research refers only to the last of these variables. For example, Ikola-Norrbacka [25] found that white collar workers are less likely to engage in CWB than blue collar workers.

However, the topic is very important, because counterproductive behavior has multiple detrimental consequences and generates significant costs, and not only for the organization itself, but also for its surroundings (the natural environment, society, etc.). These costs can be divided into economic costs (quantifiable) and non-economic costs (non-quantifiable or difficult-to-quantify, e.g., hospitalization, earlier retirement benefits, lower professional activity, loss of reputation, lower employee morale, increased environmental pollution, wasting of limited natural resources) [5,26]. The economic costs in the US alone are estimated at USD 6 to 200 billion per year [27]. Violence at work costs USD 4.2 billion, and cybercrime USD 7.1 billion per year [28].

Counterproductive behaviors and their effects therefore conflict with the principle of sustainable development in the sense of "development that meets the needs of the present generation without compromising the ability of future generations to meet theirs" [29] (p. 41). This applies not only to environmental factors (e.g., increased pollution, increased waste material), but also to economic (e.g., increased costs, increased consumption of raw materials) and social factors (e.g., deterioration of working conditions, threats to employee psychophysical health, unequal treatment, damage to the sense of community) [30]. These unsustainable behaviors are often a consequence of inappropriate interpersonal relationships at work. They can be a form of revenge on an organization or other people in the organization (e.g., if the manager does not treat employees fairly, they may deliberately carry out their tasks incorrectly or steal in the workplace). A solid understanding of this is essential at all stages of sustainable human resource management. Consequently, the knowledge of how to limit CWB (including those that impede sustainability) through traditional HR practices (e.g., employee selection) is limited [5].

Furthermore, environmental sustainability should be every organization's goal, because the environment is an important stakeholder for most enterprises. Employee behaviors that harm

the environment are against every organization's legitimate interests and should be considered counterproductive [5].

This article is also part of the dominant and important discourse in the literature, and at the same time empirically verifies and significantly furthers the investigations to date by other authors into the impact that quality of interpersonal work relationships has on counterproductive work behavior. Accordingly, the following objectives were set:

1. to determine how the quality of interpersonal work relationships affects the extent of counterproductive work behavior,
2. to determine whether the impact of interpersonal work relationship quality on the extent of counterproductive work behavior is moderated by employees' demographic features (education, age, sex, length of service and type of work).

The goals will be achieved using a survey conducted in March 2018 on a sample of 1488 professionally active people in Poland. To achieve the objectives, two research hypotheses were adopted (see the research model in Figure 1):

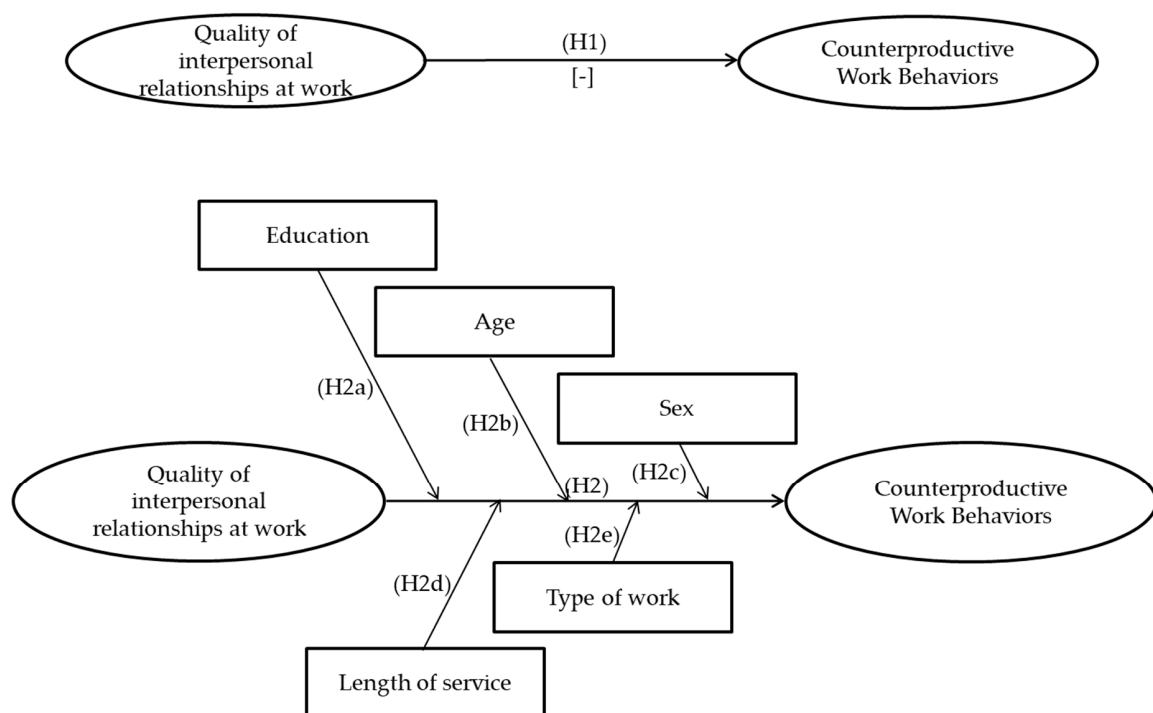


Figure 1. Research hypotheses. Source: author's own work.

Hypothesis 1 (H1): *Quality of interpersonal relationships at work has a negative influence on the degree of counterproductive work behavior.*

Hypothesis 2 (H2): *The influence that interpersonal workplace relationship quality has on the degree of counterproductive work behavior is moderated by the demographic features of employees, including: (H2a) education, (H2b) age, (H2c) sex, (H2d) length of service and (H2e) type of work.*

I expect this study to represent a significant contribution to the relevant literature in two key areas. This study begins with a thorough description of the impact that the quality of interpersonal relationships at work has on counterproductive work behaviors. This study also describes how this impact is moderated by employees' basic demographic features (education, age, sex, length of service and type of work). In the subsequent sections, I first propose a theoretical framework for this study.

Next, I propose a suitable methodology to test my research model. I also set out the empirical results of this study and discuss the contributions and implications of those findings. Lastly, I discuss the limitations and future study directions.

2. Quality of Interpersonal Relationships at Work

Every dimension of human activity is grounded in interpersonal relationships [31]. An organization is the largest incubator of such relationships because its members are “doomed” to frequent interactions and mutual closeness [32]. The relationship includes two complementary components: the task-related and the interpersonal (see also [33]). The first of these predominates and aims at the proper performance of tasks and involves the exchange of task-related resources [33]. Research into relationships at work thus focuses more on the task-related component and its effects on the organization and the organization’s results [32]. The interpersonal component applies to personal relationships between employees, and for these to occur mutual acquaintance is required—the deeper that is, the greater the share of the interpersonal component, and thus the parties become closer and begin to see each other as partners or even friends [32].

The concept of interpersonal relationships at work is not clearly understood. Gabarro [34] (p. 81) defined them as an “interpersonal relationship that is task-based, nontrivial, and of continuing duration”. It is “a series of interactions between two people, involving interchanges over an extended period of time” [35] (p. 37). They can also be described as a “sequence of interactions between two people that involves some degree of mutuality, in that the behavior of one member takes some account of the behavior of the other” [36] (p. 9). The interpersonal dimension of this relationship means that it is a mixture of the following forms of exchange: verbal (e.g., conversation), para-verbal (e.g., exclamation of surprise), non-verbal (e.g., a smile, proximity during a conversation) and physical (e.g., touching, kissing) [37].

Work relationships have a dual character, i.e., they can be positive (identified with high-quality relationships) or negative (low-quality relationships) [38–41]. In the first case, their benefits (in terms of vitality, emotions, etc.) are felt on both sides [33,41,42]. By contrast, in negative relationships, at least one party experiences adverse effects (e.g., stress, discomfort, worsened mood) [7]. High-quality relationships are, among other things, more personal, intimate, vital, frequently interactive, and abundant in a variety of (mainly positive) emotions; they are more based on open communication, reciprocity, trust, respect and cooperation, and bring positive energy, and the parties help each other [3,11,16,19,21,43–45]. Meanwhile, negative relationships are more short-lived, impersonal, limited to task-related matters, based on suspicion, formalized, devoid of emotion (and possibly abundant in negative emotions) [3,11,16].

The quality of employee relationships reflects a team’s well-being [46], but many factors complicate the examination of the quality of these relationships. First, it is a continuum of sorts, i.e., quality is graded, and rarely extreme in its form, while relationships can also be seen as neutral or indifferent [47]. Moreover, in practice, it seems easier to qualify relationships as high quality than to consider them to be low quality [48]. It should also be borne in mind that the presence of negative aspects (or the lack of positive aspects) does not necessarily mean that the relationship is wholly negative (and vice versa).

It is thus a dynamic construct [15], which means that [37,49]:

- the same relationships can be positive at some times and negative at others,
- they may include both positive and negative aspects (interactions),
- their intensity may change.

Furthermore, this category is highly subjective, i.e., it depends on a person’s individual perception as to which aspects of the relationship prevail and on their assessment of whether their expectations of the relationship have been met [50]. The same subjective perceptions apply to the costs incurred by the parties to the relationship, and of the benefits they obtain from their involvement in the relationship [7,50]. This is because the goal of the relationship is not quality itself, but the creation

of values that will meet the needs of the partners and of the organization itself [51]. An additional difficulty in researching the quality of relationships at work is caused by the multi-dimensional nature of the variable, which contains various aspects of exchange within the interaction, and which is further influenced by many conditions of individual and contextual significance.

All this also means that the concept of interpersonal relationships at work is not clearly understood. Table 1 presents selected perspectives on this question.

Table 1. Selected approaches to quality of interpersonal relationships at work.

Source	Concept
[52]	Relationship quality is identified with its strength and means the existence of links between the parties that lead to satisfaction and commitment. In turn, the strength of a relationship is “a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie” [53] (p. 1361).
[54]	Relationship quality is the level of mutual respect, trust and sense of duty between employees.
[55] (p. 265)	“Quality of relationship entails a pervasive, intentional, and constructive focus on mutual support and on members as individuals.”
[50]	Relationship quality is an evaluation of how well a relationship meets the parties’ expectations, needs, predictions, goals and aspirations.
[56]	Relationship quality is an evaluation of how far a relationship is based on the principles of reciprocity.
[36]	Relationship quality is an evaluation of what actions the parties take towards each other, their feelings and attitudes, and the results that the relationship brings them.
[6]	High-quality relationships are “relationships built on the interpersonal closeness of employees, as expressed in mutual interest, kindness and willingness to cooperate, contributing to creating a positive organizational climate conducive to effective communication, trust, loyalty and commitment to work”.

Source: author’s own work, based on [57].

Based on the above definitions, it can be stated that the quality of interpersonal relations at work is “each party’s subjective evaluation (feelings) regarding the degree to which these relationships meet expectations in terms of their results. This quality is the result of many personal and contextual conditions” [57] (p. 141). The determinants of this quality constitute an extremely important issue, though the literature does not agree on which are relevant, or to what extent [45,50]. Such determinants certainly exist, because the process of relationship development differs in pace and degree in each case [34].

The literature usually indicates the following determinants of quality of relationships at work: satisfaction, the mutual dependence of employees, commitment, trust, the traits and similarity of parties, duration of relationship, frequency of interaction, emotions, investment in relationships, communication, organizational culture and atmosphere, and relationships outside of work [57–62]. Importantly, none of them independently explains the quality of employee relationships [63].

Based on complex qualitative and quantitative research, Szostek [57] operationalized the determinants of interpersonal relationships at work, dividing them into four categories and using them to create a validated instrument for measuring this quality, which has been used in the research conducted for the needs of this article. These categories are:

1. organizational climate (e.g., atmosphere at work, honesty, trust, how parties treat one another),
2. interpersonal ties (e.g., sharing personal information, contact after work, helping each other, celebrating important occasions together),
3. interpersonal relationship building methods (e.g., caring for how the workplace is equipped, meetings with employees, surveying their opinions, the holding of company events),

4. distance resulting from management style (e.g., fair treatment by the supervisor, the “human approach” of the boss, private contact after work).

Furthermore, the author has divided the manifestations of the quality of these relations into two dimensions, i.e., the causes of the quality versus its effects (some of the manifestations play a dual role, e.g., trust between employees), and organizational manifestations (initiated by the organization) versus individual (initiated by the employee).

3. Counterproductive Work Behavior

Counterproductive behavior is also described as negative, erroneous, pathological, deviant, dysfunctional or unethical, although these concepts are not synonymous and do not express the essence of such behavior. The fundamental difficulty in defining these behaviors derives from the fact that they manifest in multiple different ways, some of which are very serious and others trivial [64–66]. As a result, different authors approach CWB differently, depending on which types of behavior they believe are predominant (see Table 2).

Table 2. Counterproductive work behaviors (CWB): sample definitions or approaches.

Source	Definition
[67] (p. 292)	“Behaviors [that] are harmful to the organization by directly affecting its functioning or property, or by hurting employees in a way that will reduce their effectiveness.”
[68] (p. 30)	“Any intentional behavior on the part of an organization member viewed by the organization as contrary to its legitimate interest.”
[69] (p. 447)	“Set of distinct acts that share the characteristics that they are volitional (as opposed to accidental or mandated) and harm or intend to harm organizations and/or organization stakeholders, such as clients, coworkers, customers, and supervisors.”
[70] (p. 418–419)	“Set of negative behaviors that are destructive to the organization by disturbing its operational activities or assets, or by hurting workers in such a way that will overcome their efficiency.”
[71] (p. 14)	“Problem that violates significant organizational norms and threatens the wellbeing of an organization, its members, or both.”

Source: author’s own work, based on [57].

However, leaving conceptual differences aside, behavior can be considered counterproductive if the following three conditions are met [72]:

1. it results in a violation of the standards in force in the organization,
2. the conduct was engaged in voluntarily, and
3. it harms (including potentially) the organization and/or its stakeholders.

It is impossible to list all the potential examples of CWB, but some authors have decided to organize them, and have proposed various classifications. The best known are listed in Table 3.

Counterproductive behaviors can also be directed against sustainable development (e.g., environmental pollution, wasting resources, using environmentally unfriendly products), and there is thus increasing discussion of “counterproductive sustainability behaviors” (CSB) [5]. Furthermore, taking into account the negative correlation between CWB and OCB [12], it can be assumed that an increased propensity for counterproductive work behavior reduces employees’ sustainable behaviors, which are often a form of organizational citizenship behaviors [22]. Meanwhile, unless employees engage authentically in such behavior, there can be no question of building a culture of sustainability [77,78].

Table 3. The best-known classifications of counterproductive work behavior.

Source.	Classification		
[73]	<ul style="list-style-type: none"> • counterproductive behavior (purposely damaging employers' property) • "doing little" (producing output of poor quality or low quantity) 		
[74]	<ul style="list-style-type: none"> • serious offenses • nonserious offenses 		
[75]	<ul style="list-style-type: none"> • property deviance (violation of the employer's property) • production deviance (violation of organizational standards regarding quality or quantity of work) 		
[27]	<ul style="list-style-type: none"> • production deviance (violates formal standards regarding the minimum required quality and quantity of work) • property deviance (without permission an employee acquires or damages the organization's material property or assets) • political deviance (involvement in social interactions detrimental to entities in personal or political terms) • personal aggression (behaving towards other people in an aggressive or hostile manner) 		
[68]	<table border="0"> <tr> <td> <ul style="list-style-type: none"> • thefts • destruction of property • abuse of information • wasting of time and resources • unsafe behavior • absenteeism </td> <td> <ul style="list-style-type: none"> • low quality of work • consumption of alcohol • drug consumption • inappropriate verbal behaviors • inappropriate somatic behaviors </td> </tr> </table>	<ul style="list-style-type: none"> • thefts • destruction of property • abuse of information • wasting of time and resources • unsafe behavior • absenteeism 	<ul style="list-style-type: none"> • low quality of work • consumption of alcohol • drug consumption • inappropriate verbal behaviors • inappropriate somatic behaviors
<ul style="list-style-type: none"> • thefts • destruction of property • abuse of information • wasting of time and resources • unsafe behavior • absenteeism 	<ul style="list-style-type: none"> • low quality of work • consumption of alcohol • drug consumption • inappropriate verbal behaviors • inappropriate somatic behaviors 		
[76]	<ul style="list-style-type: none"> • interpersonal misbehavior (e.g., bullying, aggression) • intrapersonal misbehavior (e.g., alcohol abuse, workaholism) • production misbehavior (e.g., absenteeism, lower activity) • political misbehavior (e.g., nepotism, abuse of position) • property misbehavior (e.g., theft, sabotage) 		

Source: author's own work, based on [57].

Currently, the most frequently cited classification is that proposed by Spector et al. [69]. The authors distinguish two dimensions of these behaviors, i.e., CWB-I (individual-oriented) and CWB-O (organization-oriented). They also propose five categories of behaviors, namely:

1. abuse against others—behavior harmful to other stakeholders of the organization (e.g., lying, gossiping, harassment),
2. production deviance—performance of duties by the employee such that the work cannot be properly completed (in terms of quantity and/or quality of results),
3. sabotage—deliberate destruction of the organization's property (not only tangible but also intangible, e.g., its image),
4. theft—intentional appropriation of property belonging to the organization or other people,
5. withdrawal—limiting working time to below the minimum required to properly achieve the organization's goals.

It should be noted that the causes of counterproductive behavior have not been fully identified [72], and studies instead relate primarily to how such behavior manifests. The situation is complicated by the fact that many of the analyzed causes of CWB are also identified as results of counterproductive actions.

The causes of CWB can be divided into the personal (individual, e.g., personality, demographic characteristics) and the situational, which includes organizational (e.g., organizational justice, leadership, corporate social responsibility (CSR) activities) and non-organizational (e.g., national culture, economic development) [79–82], none of which alone determine such behaviors [16]. Importantly,

organizational stressors tend to cause CWB directed against organizations (e.g., faked sick leave, sabotage) [21], while interpersonal stressors (whose source is other people) result in counterproductive behavior directed against other people [69].

4. Methodology

4.1. Sampling Procedures and Participant Characteristics

The survey was conducted from March to May 2018 using a triangulation of measurement methods, i.e., an online survey (approximately 90% of collected data), a face-to-face survey and an auditory survey (approximately 10% of data collected from 5 local enterprises). The measurement involved professionally active people in Poland, who were selected non-randomly (by a combination of deliberate selection and selection by the “snowball” method). An invitation for their employees to complete the questionnaire was sent to the institutional email addresses of:

- all municipal offices in Poland (fewer than 2500),
- the 200 businesses ranking as the 200 largest companies of 2017 by the *Wprost* weekly [83],
- 26 selected enterprises (from the Kujawsko-Pomorskie region—one of the 16 administrative regions of Poland), including 20 ranked among the 500 largest Polish businesses by the daily *Rzeczpospolita* for 2016 [84],
- the Faculty of Economic Sciences and Management at the Nicolaus Copernicus University in Torun (almost 3200 students—in the cover letter with the link to the questionnaire, it was mentioned that it should be completed only by professionally active people),

It was also sent to employed persons that the author knows personally, including via Facebook profile (about 300 people in total). Additionally, in the case of the online survey, the cover letter asked respondents to send the questionnaire to professionally active people they knew.

Respondents’ anonymity was guaranteed despite the fact that a large part of the questionnaires was sent to the potential respondents’ employers (municipal offices and enterprises). Respondents received the author’s original message with a link to an external questionnaire and were informed that only the author had access to the results of the study. In addition, participation in the survey was voluntary, and completion of demographic questions was also optional. Respondents had a high sense of anonymity. This is indicated by the fact that most of them provided their demographic data. Besides, responses to sensitive questions (mostly CWB-C) had a relatively high variance.

The characteristics of respondents in terms of main demographic variables are presented in Table 4.

4.2. Measurement Scales

The extent of counterproductive work behavior was measured using the CWB-C [85] scale (Counterproductive Work Behavior Checklist) by Spector et al. [69]. The scale is used to measure multiple manifestations of such behaviors simultaneously (the most extensive version contains 45), dividing them into the aforementioned five categories (abuse against others, production deviance, sabotage, theft, withdrawal) and two dimensions (individual- or organization-oriented). The respondents assessed how often they had engaged in manifestations of CWB, indicating one of the options: never, one or two times, one or two times per month, one or two times per week, every day—see Appendix A (Table A1).

Meanwhile, the quality of interpersonal relationships at work was measured using QIRT-S (Quality of Interpersonal Relationships in the Team Scale) [57]—see Appendix A (Table A2). This scale contains 58 wordings, and the respondent is asked to respond to them by indicating 1 of the options: I strongly disagree, I somewhat disagree, difficult to say, I somewhat agree, I strongly agree. The statements can be divided into the aforementioned four categories (organizational climate, interpersonal ties, interpersonal relationship building methods, distance resulting from management

style), and two dimensions (causes vs. effects of relationship quality, and organizational vs. individual perspective).

Table 4. Features of the tested sample.

Sex	F	56.8% (844 persons)
	M	41.7% (620 persons)
	n/a	1.6% (24 persons)
Age	mean	40.4 years
	min.	18 years
	max.	67 years
	SD	11.9 years
	n/a	70 persons
Education	higher	55.1% (820 persons)
	secondary	22.1% (329 persons)
	vocational	20.9% (311 persons)
	middle school	0.3% (4 persons)
	none	0.3% (4 persons)
Length of service in current position	n/a	1.3% (20 persons)
	mean	9.5 years
	min.	1 month
	max.	48 years
	SD	9.8 years
Current type of work	n/a	84 persons
	office/clerical	49.2% (731 persons)
	management	27.4% (407 persons)
	blue collar	21.7% (323 persons)
	n/a	1.8% (27 persons)
Sector of current employ	private	53.2% (791 persons)
	public	46.6% (693 persons)
	n/a	0.3% (4 persons)

Source: author's own work based on research results.

5. Results

5.1. Reliability Values

A total of 1488 correctly completed questionnaires were received, and these were analyzed using IBM SPSS Statistics and IBM SPSS Amos v. 16 (research data file with all observations is available in Supplementary Materials). Then, variables with very low variance were eliminated from the analysis, i.e., those for which the share of “never” replies (CWB-C) was at least 95% (see Table 5).

Table 5. Items on the CWB checklist (CWB-C) scale eliminated from analysis due to low variance.

Item No.	Item	N	%
8	Purposely damaged a piece of equipment or property	1447	97.2
25	Took money from your employer without permission	1462	98.3
32	Stole something belonging to someone at work	1460	98.1
35	Threatened someone at work with violence	1421	95.5
36	Threatened someone at work, but not physically	1425	95.8
41	Destroyed property belonging to someone at work	1455	97.8
43	Hit or pushed someone at work	1418	95.3

Source: author's own work based on research results.

Confirmatory factor analysis (without rotation) was carried out in the SPSS program using unweighted least squares method for extraction. The results are presented in Table 6.

Table 6. Results of confirmatory factor analysis.

Factor	Measurable Variable	Factor Loading	% of Variance	% of Cumulative Variance
Organizational climate	Q25	0.93	51.89	51.89
	Q27	0.711	7.15	59.04
	Q29	0.678	6.84	65.88
	Q30	0.670	5.89	71.77
	Q35	0.661	5.83	77.59
	Q38	0.684	5.17	82.77
	Q50	0.692	4.96	87.73
	Q51	0.693	4.55	92.28
	Q52	0.662	4.17	96.44
	Q58	0.677	3.56	100.00
Interpersonal ties	Q2	0.621	42.50	42.50
	Q3	0.582	8.53	51.03
	Q4	0.621	7.76	58.79
	Q6	0.599	7.04	65.83
	Q7	0.580	6.56	72.38
	Q9	0.603	6.24	78.62
	Q10	0.622	5.82	84.44
	Q11	0.573	5.53	89.97
	Q13	0.619	5.21	95.18
Distance resulting from management style	Q16	0.587	4.82	100.00
	Q17	0.645	42.84	42.84
	Q18	0.665	11.53	54.37
	Q20	0.612	10.09	64.46
	Q21	0.739	8.66	73.12
	Q22	0.474	7.75	80.87
	Q23	0.501	7.00	87.87
	Q28	0.596	6.30	94.17
Interpersonal relationship building methods	Q46	0.447	5.83	100.00
	Q39	0.629	51.35	51.35
	Q40	0.677	15.65	67.00
	Q41	0.667	12.32	79.32
	Q42	0.559	11.12	90.44
Individual-oriented CWB (CWB-I)	Q43	0.596	9.56	100.00
	C26	0.780	57.02	57.02
	C27	0.829	10.89	67.91
	C28	0.660	7.24	75.15
	C29	0.791	6.47	81.62
	C30	0.845	4.21	85.83
	C31	0.682	4.13	89.96
	C33	0.727	2.97	92.93
	C34	0.742	2.71	95.64
	C37	0.552	2.31	97.94
Organization-oriented CWB (CWB-O)	C38	0.630	2.06	100.00
	C1	0.504	28.57	28.57
	C5	0.767	12.53	41.10
	C7	0.442	11.06	52.16
	C8	0.370	9.24	61.40
	C9	0.515	8.01	69.43
	C13	0.358	7.59	77.01
	C15	0.452	6.98	84.00
	C16	0.382	6.37	90.37
	C19	0.431	5.41	95.78
	C24	0.423	4.22	100.000

Source: author's own work based on research results.

In the next stage, confirmatory factor analysis was carried out, which made it possible to select those variables that had the highest factor loadings and most significantly influenced the categories of relationship quality and dimensions of counterproductive behavior. Table 7 lists the variables used in the further analysis in structural equation models (variables are marked “Q” for quality of relationships

and “C” for counterproductive behaviors, alongside a number on a given scale). The table also contains Cronbach’s Alpha coefficients as a measure of reliability.

Table 7. Measurable variables describing categories of relationship quality and the dimension of counterproductive behavior, together with Cronbach’s alpha.

Factor (Relationship Quality Category, Counterproductive Behavior Dimension)	Measurable Variables	Cronbach’s Alpha
Organizational climate	Q25, Q27, Q29, Q30, Q35, Q38, Q50, Q51, Q52, Q58	0.897
Interpersonal ties	Q2, Q3, Q4, Q6, Q7, Q9, Q10, Q11, Q13, Q16	0.849
Distance resulting from management style	Q17, Q18, Q20, Q21, Q22, Q23, Q28, Q46	0.806
Interpersonal relationship building methods	Q39, Q40, Q41, Q42, Q43	0.759
CWB-I	C26, C27, C28, C29, C30, C31, C33, C34, C37, C38	0.914
CWB-O	C1, C5, C7, C8, C9, C13, C15, C16, C19, C24	0.707

Source: author’s own work based on research results.

Further investigation began with structural modeling of the impact that the category of quality of interpersonal relationships at work had on the dimensions of counterproductive work behavior. The model was evaluated using the maximum likelihood method, adopting a significance factor of 0.05.

It was decided not to model using the quality dimensions of interpersonal relations because they are strongly correlated with one another (partly because they are created to some extent using the same variables). Presumably, the proposed dimensions could largely be measuring the same thing, which undermines the sense in distinguishing them in the analysis.

5.2. Hypothesis Testing

5.2.1. (H1): Quality of Interpersonal Relationships at Work Has a Negative Influence on the Degree of Counterproductive Work Behavior

The hypothetical structural equation modeling (SEM) structural model is presented in Figure 2 and illustrates the assumed structural relationships between the categories of relationship quality and the dimensions of counterproductive behavior. Importantly, scientific reflection on the results of the author’s research and that of other authors led to the further assumption that a relationship existed between categories of this quality. The illustrated model does not take into account the measurable variables making up individual factors, but it is consistent with those listed in Table 7.

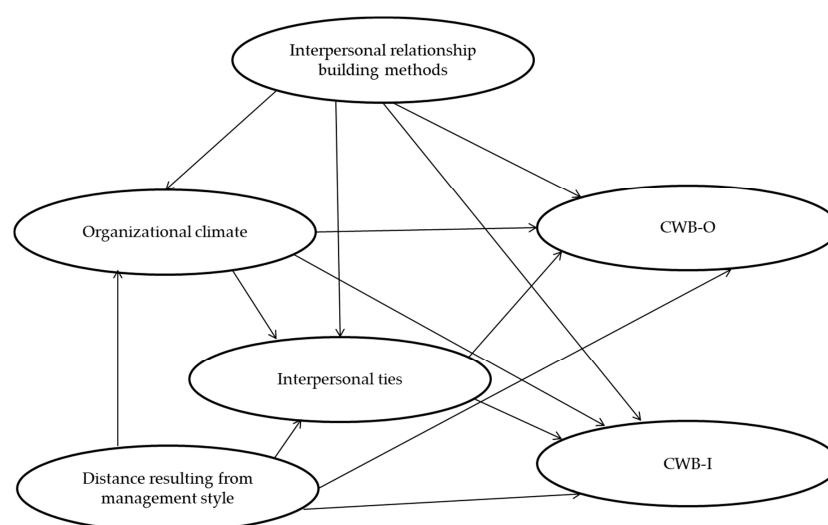


Figure 2. Illustration of the structural equation modeling (SEM) model (impact that category of interpersonal relationship quality at work has on dimensions of counterproductive behavior). Source: author’s own work.

Figures 3 and 4 show the relationship between individual categories of relationship quality and CWB-I/CWB-O.

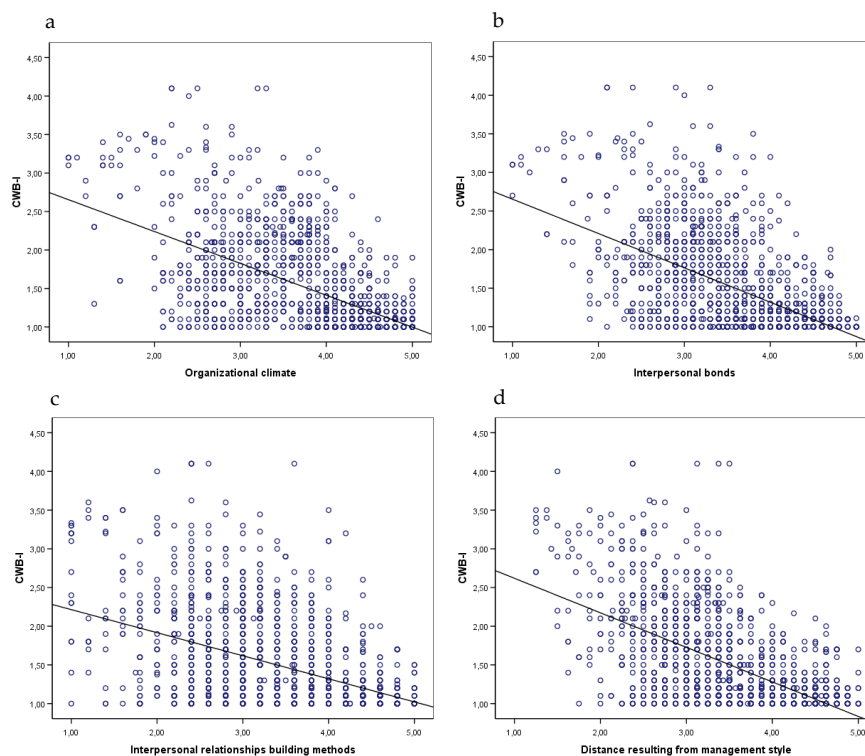


Figure 3. (a)–(d) Relationships between relationship quality categories and CWB-I. Source: author's own work based on research results.

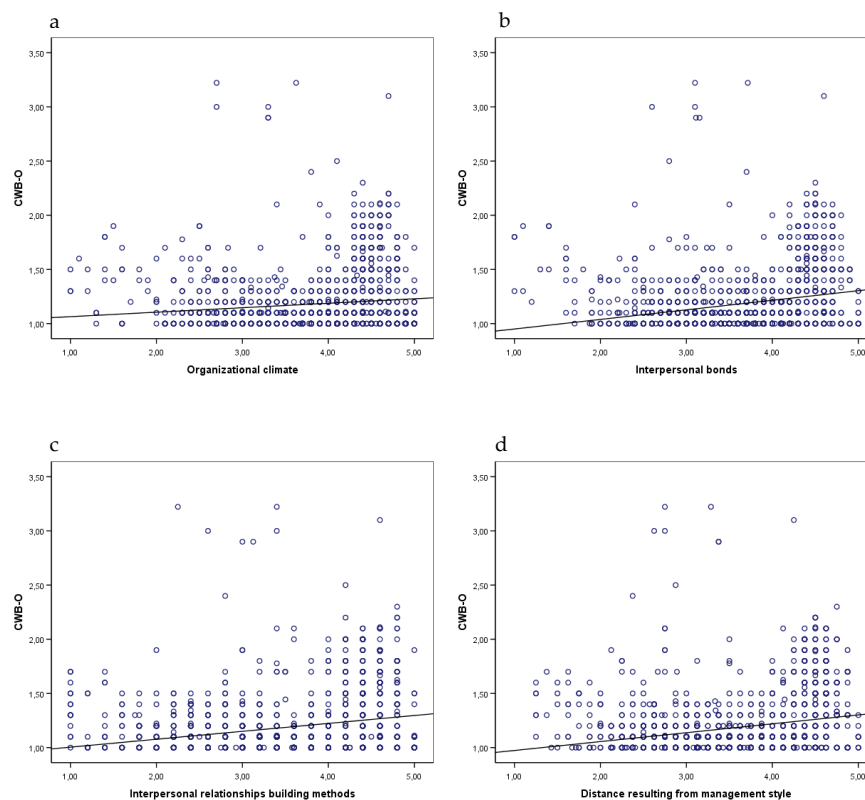


Figure 4. (a)–(d) Relationships between relationship quality categories and CWB-O. Source: author's own work based on research results.

The external SEM model was evaluated using the maximum likelihood method [86,87]. The results of the estimation of the external SEM model (factor analysis) are presented in Table 8, while the internal model (regression analysis) is shown in Table 9. Measures of the degree to which the model fits the data are shown in Table 10, while Table 11 lists standardized total effects of the impact that individual quality categories relations have on CWB-I and CWB-O.

Table 8. Results of factor analysis on SEM model.

Relationship	Parameter	Evaluation of Parameter	P Value
Q 25 ← Organizational climate	α_1	0.654	
Q 27 ← Organizational climate	α_2	0.670	0.000
Q 29 ← Organizational climate	α_3	0.668	0.000
Q 30 ← Organizational climate	α_4	0.635	0.000
Q 35 ← Organizational climate	α_5	0.646	0.000
Q 38 ← Organizational climate	α_6	0.653	0.000
Q 50 ← Organizational climate	α_7	0.664	0.000
Q 51 ← Organizational climate	α_8	0.664	0.000
Q 52 ← Organizational climate	α_9	0.631	0.000
Q 58 ← Organizational climate	α_{10}	0.631	0.000
Q 2 ← Interpersonal ties	α_{11}	0.582	0.000
Q 3 ← Interpersonal ties	α_{12}	0.541	0.000
Q 4 ← Interpersonal ties	α_{13}	0.600	0.000
Q 6 ← Interpersonal ties	α_{14}	0.560	0.000
Q 7 ← Interpersonal ties	α_{15}	0.574	0.000
Q 9 ← Interpersonal ties	α_{16}	0.573	0.000
Q 10 ← Interpersonal ties	α_{17}	0.610	0.000
Q 11 ← Interpersonal ties	α_{18}	0.545	0.000
Q 13 ← Interpersonal ties	α_{19}	0.655	0.000
Q 16 ← Interpersonal ties	α_{20}	0.560	
Q 39 ← Interpersonal relationship building methods	α_{21}	0.661	
Q 40 ← Interpersonal relationship building methods	α_{22}	0.694	0.000
Q 41 ← Interpersonal relationship building methods	α_{23}	0.637	0.000
Q 42 ← Interpersonal relationship building methods	α_{24}	0.546	0.000
Q 43 ← Interpersonal relationship building methods	α_{25}	0.581	0.000
Q 17 ← Distance resulting from management style	α_{26}	0.655	
Q 18 ← Distance resulting from management style	α_{27}	0.669	0.000
Q 20 ← Distance resulting from management style	α_{28}	0.623	0.000
Q 21 ← Distance resulting from management style	α_{29}	0.730	0.000
Q 22 ← Distance resulting from management style	α_{30}	0.461	0.000
Q 23 ← Distance resulting from management style	α_{31}	0.487	0.000
Q 28 ← Distance resulting from management style	α_{32}	0.603	0.000
Q 46 ← Distance resulting from management style	α_{33}	0.463	0.000
C26 ← CWB-I	α_{34}	0.792	
C27 ← CWB-I	α_{35}	0.836	0.000
C28 ← CWB-I	α_{36}	0.621	0.000
C29 ← CWB-I	α_{37}	0.798	0.000
C30 ← CWB-I	α_{38}	0.852	0.000
C31 ← CWB-I	α_{39}	0.627	0.000
C33 ← CWB-I	α_{40}	0.710	0.000
C34 ← CWB-I	α_{41}	0.726	0.000
C37 ← CWB-I	α_{42}	0.523	0.000
C38 ← CWB-I	α_{43}	0.592	0.000
C1 ← CWB-I	α_{44}	0.488	
C5 ← CWB-I	α_{45}	0.546	0.000
C7 ← CWB-I	α_{46}	0.439	0.000
C8 ← CWB-I	α_{47}	0.391	0.000
C9 ← CWB-I	α_{48}	0.542	0.000
C13 ← CWB-I	α_{49}	0.402	0.000
C15 ← CWB-I	α_{50}	0.504	0.000
C16 ← CWB-I	α_{51}	0.423	0.000
C19 ← CWB-I	α_{52}	0.411	0.000
C24 ← CWB-I	α_{53}	0.471	0.000

Source: author's own work based on research results.

Table 9. Regression analysis results for SEM model.

Relationship	Parameter	Evaluation of Parameter	Evaluation of Standardized Parameters	P Value
Interpersonal relationship building methods → Organizational climate	β_1	0.234	0.244	0.000
Distance resulting from management style → Organizational climate	β_2	0.630	0.705	0.000
Distance resulting from management style → Interpersonal ties	β_3	0.200	0.267	0.000
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.028	−0.034	0.145
Organizational climate → Interpersonal ties	β_5	0.556	0.663	0.000
Interpersonal relationship building methods → CWB-O	β_6	0.101	0.312	0.000
Organizational climate → CWB-O	β_7	−0.182	−0.537	0.000
Distance resulting from management style → CWB-O	β_8	0.016	0.052	0.382
Interpersonal ties → CWB-O	β_9	0.231	0.575	0.000
Interpersonal relationship building methods → CWB-I	β_{10}	−0.070	−0.087	0.002
Organizational climate → CWB-I	β_{11}	−0.134	−0.159	0.010
Distance resulting from management style → CWB-I	β_{12}	−0.273	−0.362	0.000
Interpersonal ties → CWB-I	β_{13}	−0.140	−0.139	0.028

Source: author's own work based on research results.

Table 10. Measures of the degree of SEM model fit to the data.

Model	IFI	PNFI	RMSEA	CMIN/DF
Estimated	0.827	0.729	0.054	5.294
Saturated	1	0.000		
Independent	0	0.000	0.123	23.635

Source: author's own work based on research results.

Table 11. Standardized total effects of relationship quality category on CWB-I and CWB-O.

	Interpersonal Relationship Building Methods	Distance Resulting from Management Style	Organizational Climate	Interpersonal Ties
Organizational climate	0.244	0.705	0.000	0.000
Interpersonal ties	0.127	0.735	0.663	0.000
CWB-O	0.254	0.095	−0.157	0.575
CWB-I	−0.143	−0.576	−0.251	−0.139

Source: author's own work based on research results.

In factor analysis, all variable loadings are statistically significant. For some variables, the P value could not be calculated, because they needed to be assigned constant variance in order to ensure model identifiability [88].

For most categories of relationship quality, the impact on both CWB dimensions is negative and this relationship is statistically significant (parameters β_7 , β_{10} , β_{11} , β_{12} , β_{13} ; see Table 9). This means that improvement (or deterioration) in these aspects of relationship quality leads to a decrease

(or increase) in the degree of such behavior. As already mentioned, and as other authors have already confirmed (e.g., [18–20]) this relationship between these constructs is logical.

For the categories “interpersonal relationship building methods” and “interpersonal ties” only, despite the fact that they negatively affect CWB-I (β_{10} , β_{13}), they also noticeably positively influence CWB-O (β_6 , β_9). This is one of the few observed paradoxes for which some logical justification can be found.

The category “interpersonal relationship building methods” includes various organizational activities (e.g., caring for how the workplace is equipped, organizing meetings with employees) and its positive influence on CWB-O (β_6) may be explained by employee cynicism. This is a situation in which employees begin to exploit the activities that the organization conducts to build work relationships for their own interests (e.g., the organization promotes teamwork, limiting the ability to control the activities of a single employee, which may increase social loafing). This relationship stands as a warning to the organization—its activities for creating relationships between employees must be prudent and must not lead to personnel being reoriented from organizational interests to individual interests.

The category “interpersonal ties” is in a way the essence of workplace relationship quality (it includes, for example, private conversations, displays of emotion, helping out). When ties are strong, relationships between employees often move on to a non-professional footing. This may explain this category’s positive relationship with CWB-O (β_9)—e.g., according to the team, the organization’s activities are directed against an employee (e.g., unfair treatment, dismissal) and then counterproductive behavior may be a form of opposition by the rest of the team or a display of revenge against the organization for such an act. This means that, paradoxically, an organization may be disadvantaged when interpersonal relations at work are too good (employees become reoriented away from the organization and towards the team).

The negative impact of the “interpersonal relationship building methods” category on CWB-I (β_{10}) can be explained by the fact that the organization has certain tools that it can use to reduce such behaviors (e.g., employing the right workers, promoting dialogue between employees). If the organization’s activities in this respect are inappropriate or lacking, the tendency of personnel towards CWB-I may increase. The “interpersonal ties” category is extremely interpersonal, and so its negative influence on CWB-I (β_{13}) is more understandable, and requires no further comment—quite simply, the stronger the bonds between employees, the less they tend to behave counter-productively towards each other.

The negative impact of the “distance resulting from management style” category on CWB-I (β_{12}) also seems logical. The variables comprising this category primarily express how management treats employees (e.g., clear division of responsibilities, ease of communication). Therefore, the higher the quality of the relationship in this aspect, the lower personnel’s tendency to direct CWB at a supervisor. In the opposite case (e.g., unfair or disrespectful treatment of subordinates), counterproductive behavior would be a means of retaliating against a supervisor.

The “organizational climate” category influences both dimensions of CWB negatively (β_7 , β_{11}) and in both cases this relationship is statistically significant. Despite the fact that this category consists of both organizational and individual variables (e.g., honesty, trust, atmosphere at work), responsibility for the climate lies mainly with the organization. Therefore, the higher the quality of relationships in this domain, the lower personnel’s tendency towards CWB-O. In the opposite case, such behavior may be a manifestation of revenge against the organization for a bad workplace climate.

Particular categories of relationship quality also interact with one other. The categories “interpersonal relationship building methods” and “distance resulting from management style” significantly positively influence the category “organizational climate” (β_7 , β_{11}). This is understandable because, as previously mentioned, workplace climate is most heavily influenced by the organization, whereas both categories of relationship quality emanate from the organization’s activities in this regard.

The category “interpersonal ties” is positively influenced by the categories “distance resulting from management style” and “organizational climate” (β_3 , β_5). In the first case (β_3) a supervisor’s

approach to subordinates affects not only vertical interpersonal relationships, but also horizontal ones (e.g., unfair treatment of subordinates leads to mutual jealousy between them, while a clear division of labor reduces task-related conflicts within a team). The influence of organizational climate on interpersonal ties at work (β_5) is equally understandable—when it is based on trust, cooperation, solidarity and discretion, ties between employees are strengthened. In the opposite case they atrophy.

The relationship between the categories “interpersonal relationship building methods” and “interpersonal ties” is not statistically significant (β_4).

The interaction that the model shows between categories of relationship quality made it possible to determine the indirect and total influence of these categories on the analyzed dimensions of CWB. For example, the category “distance resulting from management style” affects CWB-O less directly and more indirectly—through two other categories: “organizational climate” and “interpersonal ties”.

Considering the standardized values of total effects (see Table 11), CWB-O is most strongly influenced by the category “interpersonal ties” (0.575), and least by “distance resulting from management style” (0.095). This last category also has the strongest influence on CWB-I (−0.576).

Regarding the estimation of the model’s degree of fit to the empirical data (see Table 10), it should be emphasized that the Incremental Fit Index (IFI) value is 0.827, while Root Mean Square Error of Approximation (RMSEA) is 0.054, which leads to the conclusion that the model’s fit is correct and satisfactory. The CMIN/DF statistic deviates slightly from the norm (it is above 2), but in the case of SEM models, each measure of their quality has some limitations, and the choice between them is usually subjective [88].

IFI (Incremental Fit Index) is one of many measures of the relative fit of a model and is calculated based on the comparison of chi-square statistics and the degrees of freedom of the estimated and base model. In this case, the base model is understood to be an independent model in which the analyzed variables are not intercorrelated at all. The IFI returns values in the range $< 0; 1 >$ and the higher it is, the better the model’s fit to the data [89].

RMSEA (Root Mean Square Error of Approximation) is the discrepancy between the theoretical and population matrices of variance-covariance, corrected by the number of degrees of freedom. This is one of the few measures for which fairly widely accepted thresholds obtain, i.e.,

- < 0.05 , good fit,
- $0.05\text{--}0.08$, acceptable fit,
- $0.08\text{--}0.10$, moderate fit,
- 0.1 , unacceptable fit [89].

CMIN (chi-square statistic) is a model fit test statistic. It can be used to calculate the “p” significance of a model’s misfit to the data. When examining large samples, it is difficult not to reject the null hypothesis, i.e., that the model fits the data ($p > 0.05$). In such situations, the CMIN/DF ratio (normed chi-square statistic) is considered, where DF is the number of different elements of the variance-covariance matrix minus the number of estimated parameters. Researchers recommend that models in which CMIN/DF exceeds 2 be rejected, although other authors adopt less strict limits (of 5 or even 10) [89].

5.2.2. (H2): The Impact of Interpersonal Work Relationship Quality on the Extent of Counterproductive Work Behavior is Moderated by Employees’ Demographic Features (Education, Age, Sex, Length of Service and Type of Work)

In order to verify the hypothesis about the impact of the quality of interpersonal relationships at work on CWB dimensions being moderated by the demographic features of employees (education, age, sex, length of service and type of work), estimated models were analyzed in subgroups that were distinguished in terms of these features.

For testing the differences between corresponding coefficients in the models, a T-test was used. Parameters for which the statistic value is greater than $|1.96|$ are statistically significantly different between analyzed groups [90].

Firstly, the examined persons were divided into two subgroups by level of education. More than half had a higher education, so to make groups of the same size, only two subgroups were distinguished: I—people with a higher education, II—people with a middle school, vocational or secondary education. The results of the internal model estimation are shown in Table 12.

For people without a higher education (group II), the influence that the categories “interpersonal relationship building methods”, “organizational climate” and “interpersonal ties” have on CWB-I proved to be statistically insignificant (β_{10} , β_{11} , β_{13}). In addition, for this group, almost all categories of workplace relationship quality had a less influence than they did for people with a higher education, i.e., those from group I (a higher P value). These differences for parameters β_9 and β_{11} were statistically significant (T-test value greater than |1.196|). Of course, this does not mean that people from group II are less inclined towards CWB, but it can be stated that relationship quality is not as important a factor in shaping these behaviors as it is for group I people (e.g., this may derive from the type of work performed, which for people with a higher education may be a profession with more frequent interactions with others).

The respondents were also divided into two groups based on age, taking 35 as the cut-off boundary (which made the groups more or less equal in size, but is also often used in practice as a boundary to divide people into the young and the mature). The results of the internal model estimation are shown in Table 13. No significant differences were found in the influence of relationship quality on CWB in either group, with two exceptions: in the group of people aged over 35 the category “organizational climate” was found to influence CWB-I (β_{11}), while among those aged 35 or less the category “interpersonal ties” was found to influence CWB-I. Furthermore, the influence of the category “organizational climate” and “interpersonal ties” on CWB-O (β_7 , β_9) and “distance resulting from management style” on CWB-I (β_{12}) was stronger in group II.

Table 12. Results of internal model estimation for subgroups by education.

Relationship	Parameter	Group I—Higher Education		Group II—Middle School, Vocational or Secondary Education		T Statistic	P value
		Standardized Parameter Value	P Value	Standardized Parameter Value	P Value		
Interpersonal relationship building methods → Organizational climate	β_1	0.150	0.000	0.414	0.000	−3.196	0.002
Distance resulting from management style → Organizational climate	β_2	0.707	0.000	0.691	0.000	0.254	0.800
Distance resulting from management style → Interpersonal ties	β_3	0.062	0.133	0.614	0.000	−7.155	0.000
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.044	0.110	0.067	0.163	−0.988	0.326
Organizational climate → Interpersonal ties	β_5	0.845	0.000	0.325	0.000	10.207	0.000
Interpersonal relationship building methods → CWB-O	β_6	0.277	0.000	0.299	0.000	−0.128	0.898
Organizational climate → CWB-O	β_7	−0.541	0.000	−0.445	0.000	−1.324	0.189
Distance resulting from management style → CWB-O	β_8	−0.131	0.057	0.395	0.008	−3.774	0.000
Interpersonal ties → CWB-O	β_9	0.547	0.000	0.366	0.017	3.209	0.002
Interpersonal relationship building methods → CWB-I	β_{10}	−0.111	0.000	−0.078	0.191	−0.361	0.719
Organizational climate → CWB-I	β_{11}	−0.263	0.004	−0.064	0.469	−5.033	0.000
Distance resulting from management style → CWB-I	β_{12}	−0.321	0.000	−0.319	0.007	−0.033	0.974
Interpersonal ties → CWB-I	β_{13}	−0.175	0.041	−0.147	0.227	−0.956	0.341
Assessment of level of fit		CMIN/DF = 3.668 IFI = 0.825 RMSEA = 0.057		CMIN/DF = 3.320 IFI = 0.790 RMSEA = 0.059			

Source: author's own work based on research results.

Table 13. Results of internal model estimation for subgroups by age.

Relationship	Parameter	Group I—35 or Younger		Group II—over 35		T Statistic	P Value
		Standardized Parameter Value	P Value	Standardized Parameter Value	P Value		
Interpersonal relationship building methods → Organizational climate	β_1	0.198	0.000	0.263	0.000	−0.782	0.436
Distance resulting from management style → Organizational climate	β_2	0.700	0.000	0.718	0.000	−0.296	0.768
Distance resulting from management style → Interpersonal ties	β_3	0.207	0.000	0.297	0.000	−1.195	0.235
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.021	0.558	−0.042	0.168	0.186	0.853
Organizational climate → Interpersonal ties	β_5	0.691	0.000	0.652	0.000	0.743	0.459
Interpersonal relationship building methods → CWB-O	β_6	0.293	0.000	0.306	0.000	−0.082	0.935
Organizational climate → CWB-O	β_7	−0.372	0.003	−0.613	0.000	3.151	0.002
Distance resulting from management style → CWB-O	β_8	0.083	0.324	0.034	0.686	0.411	0.682
Interpersonal ties → CWB-O	β_9	0.272	0.023	0.767	0.000	−7.411	0.000
Interpersonal relationship building methods → CWB-I	β_{10}	−0.074	0.081	−0.084	0.024	0.132	0.895
Organizational climate → CWB-I	β_{11}	−0.146	0.109	−0.167	0.047	0.634	0.528
Distance resulting from management style → CWB-I	β_{12}	−0.271	0.000	−0.424	0.000	3.601	0.000
Interpersonal ties → CWB-I	β_{13}	−0.255	0.005	−0.067	0.449	−8.480	0.000
Assessment of level of fit		CMIN/DF = 3.163 IFI = 0.794 RMSEA = 0.060		CMIN/DF = 3.893 IFI = 0.809 RMSEA = 0.057			

Source: author's own work based on research results.

When the population was divided into sex subgroups, for men the categories “interpersonal relationship building methods”, “organizational climate” and “interpersonal ties” had no statistically significant influence on CWB-I (β_{10} , β_{11} , β_{13}). A similar situation was noted for the impact of the category “distance resulting from management style” on CWB-O (β_8). However, it can be seen that in almost all the considered combinations the impact of relationship quality on CWB-I is of higher significance for women (see P value and T-test). The results of the model estimation are shown in Table 14.

Respondents were then divided into groups by length of service in their given position, with the dividing cut-off set as 8 years (the median). The results of the model estimation are shown in Table 15. For people of shorter service periods, the category “interpersonal relationship building methods” does not significantly influence CWB-I (β_{10}); the influence of the category “organizational climate” on CWB-I was also found to be insignificant (β_{11}). Meanwhile, for employees of longer service, the category “distance resulting from management style” does not significantly influence CWB-O (β_8).

The final part of the investigation involved dividing respondents into subgroups by type of work. The results of the model estimation are shown in Table 16, and of T-test in Table 17. For blue-collar employees, two categories of relationship quality (“organizational climate” and “distance resulting from management style”) had a statistically non-significant influence on CWB-I. The second of these categories also negatively affected CWB-O for this group of employees. Regarding employees in managerial positions, the categories “interpersonal relationship building methods”, “organizational climate” and “distance resulting from management style” turned out to have an insignificant influence on CWB-I, as did the category “interpersonal ties” on CWB-O.

Table 14. Results of internal model estimation for subgroups by sex.

Relationship	Parameter	Group 1—Women		Group II—Men		T Statistic	P Value
		Standardized Parameter Value	P value	Standardized Parameter Value	P Value		
Interpersonal relationship building methods → Organizational climate	β_1	0.154	0.000	0.276	0.000	−1.417	0.160
Distance resulting from management style → Organizational climate	β_2	0.691	0.000	0.738	0.000	−1.446	0.151
Distance resulting from management style → Interpersonal ties	β_3	0.169	0.000	0.279	0.000	2.789	0.006
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.026	0.269	0.008	0.810	−0.391	0.697
Organizational climate → Interpersonal ties	β_5	0.536	0.000	0.543	0.000	1.168	0.246
Interpersonal relationship building methods → CWB-O	β_6	0.097	0.000	0.109	0.000	−1.227	0.223
Organizational climate → CWB-O	β_7	−0.193	0.000	−0.149	0.002	0.311	0.756
Distance resulting from management style → CWB-O	β_8	0.008	0.742	0.019	0.559	−0.412	0.681
Interpersonal ties → CWB-O	β_9	0.279	0.000	0.164	0.004	1.230	0.222
Interpersonal relationship building methods → CWB-I	β_{10}	−0.114	0.000	−0.040	0.313	−1.447	0.151
Organizational climate → CWB-I	β_{11}	−0.178	0.003	−0.037	0.715	−4.276	0.000
Distance resulting from management style → CWB-I	β_{12}	−0.208	0.000	−0.409	0.000	3.259	0.002
Interpersonal ties → CWB-I	β_{13}	−0.187	0.020	−0.085	0.471	−2.918	0.004
Assessment of level of fit		CMIN/DF = 3.899 IFI = 0.813 RMSEA = 0.059		CMIN/DF = 2.968 IFI = 0.801 RMSEA = 0.056			

Source: author's own work based on research results.

Table 15. Results of internal model estimation for subgroups by length of service.

Relationship	Parameter	Group I—Service of Fewer than 8 Years		Group II—Service of 8 Years or More		T statistic	P value
		Standardized Parameter Value	P value	Standardized Parameter Value	P value		
Interpersonal relationship building methods → Organizational climate	β_1	0.400	0.000	0.100	0.003	3.629	0.000
Distance resulting from management style → Organizational climate	β_2	0.683	0.000	0.728	0.000	−0.723	0.471
Distance resulting from management style → Interpersonal ties	β_3	0.278	0.000	0.263	0.000	0.199	0.843
Interpersonal relationship building methods → Interpersonal ties	β_4	0.032	0.433	−0.083	0.007	1.072	0.286
Organizational climate → Interpersonal ties	β_5	0.665	0.000	0.639	0.000	0.489	0.626
Interpersonal relationship building methods → CWB-O	β_6	0.333	0.000	0.300	0.000	0.222	0.825
Organizational climate → CWB-O	β_7	−0.615	0.000	−0.412	0.000	−2.914	0.004
Distance resulting from management style → CWB-O	β_8	0.160	0.092	−0.062	0.446	1.934	0.056
Interpersonal ties → CWB-O	β_9	0.573	0.000	0.511	0.000	1.103	0.273
Interpersonal relationship building methods → CWB-I	β_{10}	−0.081	0.108	−0.100	0.005	0.211	0.833
Organizational climate → CWB-I	β_{11}	−0.083	0.426	−0.192	0.011	2.570	0.012
Distance resulting from management style → CWB-I	β_{12}	−0.321	0.000	−0.365	0.000	0.734	0.465
Interpersonal ties → CWB-I	β_{13}	−0.193	0.075	−0.158	0.041	−1.018	0.311
Assessment of level of fit		CMIN/DF = 3.553 IFI = 0.797 RMSEA = 0.058		CMIN/DF = 3.462 IFI = 0.813 RMSEA = 0.059			

Source: author's own work based on research results.

Table 16. Results of estimation of the internal model for subgroups by type of work.

Relationship	Parameter	Group I—blue collar employees		Group II—Office/Clerical Staff		Group III—Management	
		Standardized Parameter Value	P Value	Standardized Parameter Value	P Value	Standardized Parameter Value	P Value
Interpersonal relationship building methods → Organizational climate	β_1	0.382	0.000	0.131	0.000	0.375	0.000
Distance resulting from management style → Organizational climate	β_2	0.799	0.000	0.568	0.000	0.637	0.000
Distance resulting from management style → Interpersonal ties	β_3	0.441	0.000	0.072	0.016	0.382	0.000
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.041	0.451	−0.021	0.385	0.053	0.252
Organizational climate → Interpersonal ties	β_5	0.450	0.000	0.648	0.000	0.379	0.000
Interpersonal relationship building methods → CWB-O	β_6	0.120	0.010	0.063	0.000	0.169	0.000
Organizational climate → CWB-O	β_7	−0.192	0.044	−0.180	0.000	−0.116	0.044
Distance resulting from management style → CWB-O	β_8	0.081	0.385	0.003	0.827	0.123	0.040
Interpersonal ties → CWB-O	β_9	0.226	0.056	0.223	0.000	0.029	0.778
Interpersonal relationship building methods → CWB-I	β_{10}	−0.261	0.000	−0.044	0.108	−0.053	0.365
Organizational climate → CWB-I	β_{11}	−0.056	0.716	−0.251	0.000	0.150	0.175
Distance resulting from management style → CWB-I	β_{12}	0.016	0.919	−0.293	0.000	−0.121	0.272
Interpersonal ties → CWB-I	β_{13}	−0.328	0.098	−0.106	0.176	−0.450	0.029
Assessment of level of fit		CMIN/DF = 2.292 IFI = 0.778 RMSEA = 0.063		CMIN/DF = 3.473 IFI = 0.817 RMSEA = 0.058		CMIN/DF = 2.763 IFI = 0.740 RMSEA = 0.066	

Source: author's own work based on research results.

Table 17. Results of T-test calculated for subgroups by type of work.

Relationship	Parameter	Group I/II		Group I/III		Group II/III	
		T Statistic	P Value	T statistic	P Value	T Statistic	P Value
Interpersonal relationship building methods → Organizational climate	β_1	3.573	0.001	1.142	0.256	−2.630	0.010
Distance resulting from management style → Organizational climate	β_2	0.362	0.718	−0.288	0.774	−0.536	0.593
Distance resulting from management style → Interpersonal ties	β_3	4.471	0.000	−1.208	0.230	−4.833	0.000
Interpersonal relationship building methods → Interpersonal ties	β_4	−0.262	0.794	−1.171	0.244	−0.753	0.453
Organizational climate → Interpersonal ties	β_5	−5.310	0.000	1.270	0.207	5.848	0.000
Interpersonal relationship building methods → CWB-O	β_6	0.292	0.771	−1.524	0.131	−1.275	0.205
Organizational climate → CWB-O	β_7	3.773	0.000	−0.935	0.352	−4.778	0.000
Distance resulting from management style → CWB-O	β_8	0.937	0.351	−4.128	0.000	−2.591	0.011
Interpersonal ties → CWB-O	β_9	−5.510	0.000	8.429	0.000	11.705	0.000
Interpersonal relationship building methods → CWB-I	β_{10}	−2.932	0.004	−3.531	0.001	0.133	0.894
Organizational climate → CWB-I	β_{11}	6.026	0.000	−6.923	0.000	−11.397	0.000
Distance resulting from management style → CWB-I	β_{12}	6.779	0.000	5.407	0.000	−3.464	0.001
Interpersonal ties → CWB-I	β_{13}	−6.223	0.000	8.146	0.000	12.572	0.000

Source: author's own work based on research results.

6. Discussion and Conclusions

The article discusses the impact that quality of interpersonal relations at work (the categories of this quality are: organizational climate, interpersonal ties, interpersonal relationship building methods, distance resulting from management style) has on counterproductive work behavior (the dimensions of these behaviors are: those directed against other people and those directed against the organization itself). It was also investigated how this impact is moderated by employees' basic demographic features, namely: education, age, sex, length of service and type of work. Based on the analyses carried out using SEM structural modeling, it must be concluded that there are no grounds for rejecting either research hypothesis, i.e.:

Hypothesis 1 (H1): *Quality of interpersonal relationships at work has a negative influence on the degree of counterproductive work behavior.*

Hypothesis 2 (H2): *The impact of interpersonal work relationship quality on the extent of counterproductive work behavior is moderated by employees' demographic features (education, age, sex, length of service and type of work).*

The relationship between these constructs is, however, far more complex, as evidenced by the paradoxes that are discussed, and primarily due to cases in which certain categories of relationship quality have a positive effect on CWB-O or CWB-I.

The subject of the article is closely related to the area of sustainability. Counterproductive behaviors often violate the principles of sustainability in each of three areas: environmental (e.g., increased waste material), economic (e.g., theft of raw materials) and social (e.g., deterioration of working conditions, unequal treatment). These behaviors are often a consequence of inappropriate interpersonal relationships at work (e.g., they are a form of revenge on an organization or other people in the organization). Furthermore, due to the negative relationship between CWB and OCB, an increased propensity for counterproductive behavior limits employees' sustainable behaviors, which are a manifestation of organizational citizenship behaviors. So, the matters addressed in the article are particularly important for organizations that want to operate in a sustainable manner. Every organization that wants to contribute to sustainable development should monitor the quality of interpersonal relationships at work to minimize employees' propensity to engage in CWB and CSB.

6.1. Theoretical Contributions and Managerial Implications

The considerations made in the article contribute greatly to developing management science theories, in particular in terms of the impact that quality of interpersonal relationships at work has on counterproductive work behavior. Until now, this issue had principally been understood intuitively or based on unverified paradigms. The author has empirically confirmed that the said influence exists—and furthermore, that it is moderated by such personnel demographic features as education, age, sex, length of service and type of work. Almost all categories of workplace relationship quality had a less statistically significant influence for employees without higher education than they did for people with a higher education. Only a few significant differences in the influence of relationship quality on CWB were found between age groups. Almost all considered categories of relationship quality had a more significant impact on CWB for women than for men. Furthermore, for employees of longer service (compared to those of shorter service) and those with managerial position (compared to “blue collar” workers), more categories of relationship quality had a significant influence on CWB.

The article also confirms the complexity of the relationship between relationship quality and CWB. Looking at this issue in brief it can be stated that the organization should take care that relationships between employees are as good as they should be (the results of the study prove that this does not mean that the quality of relationships should be as high as possible; it should be of such a level that does not reorient the employee from the interests of the organization to the interests of the team).

This will reduce their engagement in various types of counterproductive behavior (mainly those aimed at colleagues, but also in counterproductive sustainability behaviors). Furthermore, employees will be more likely engage in various types of OCB, including sustainability behaviors. Not only does the whole organization benefit from this, but so too does its environment, including the natural environment and society. Thus, each organization should use various available tools that can influence the quality of relationships at work (e.g., company events, employee meetings, promoting teamwork). Conversely, if these relationships are of low quality, employees will more readily engage in various forms of CWB.

However, a more thorough analysis of what impact the quality of interpersonal relationships at work has on counterproductive work behavior reveals many paradoxes that should sensitize managers to the issue of managing these relationships. The key guidelines that need to be considered when managing the quality of interpersonal relationships at work include:

1. Building high-quality interpersonal relationships at work should be moderated so as not to reorient the employee away from the organization and towards him/herself or the team. Such a reorientation may result in a greater degree of CWB-O (e.g., in the name of solidarity with the team) or of CWB-I (e.g., abuse of colleagues' trust).
2. The organization must not forget that retaliation is one of the main reasons for employees to engage in counterproductive behavior against the employer. Hence, imprudent actions by managers (e.g., non-payment for overtime, undervaluing subordinates) may intensify such staff behavior.
3. The organization's prevailing climate (which should be based on honesty, solidarity, altruism, etc.) is very important for the quality of relationships at work, and thus for employees' propensity for CWB.
4. Of equal importance for the relationship between quality of relationships and CWB are employees' demographic features. (The relationship is strongest for employees with higher education, those in senior positions, those with longer service, and women. Apart from these, only a few significant differences in the influence of relationship quality on CWB were found between age groups.)
5. When recruiting new people, attention should be paid not only to candidates' knowledge, experience and qualifications, but also to their propensity for CWB, as well as to the impact of a given person on the quality of relationships in the team (in this case, integrity tests or information from former employers or from Facebook can be used).
6. The process of socializing employees within the organization should be thought out and balanced in terms of orientating the person towards his/her own interest, and that of the team and the workplace. Open communication and consistency in action play an important role here.
7. Employees should be trained in the competences that play a key role in the quality of interpersonal relationships at work and in counterproductive work behavior. These might include not only traditional training, but also atypical activities (e.g., strategy games, going out to play paint ball together).
8. The quality of relationships between employees and the degree of CWB should constantly be monitored so as to respond sufficiently early to any disturbing situations. The available measuring scales can be used for this (e.g., those discussed in the article—the CWB-C and the QIRT-S). It is necessary to ensure respondent anonymity, which will increase data reliability. Naturally, after completing a survey, employees should be informed of their results, and the necessary actions should be taken to mold the quality of relationships between employees and to prevent CWB.

6.2. Limitations and Future Study Directions

Table 18 presents the main shortcomings of the study, as well as actions taken to mitigate the effects of identified restrictions.

Table 18. Limitations of the author’s research, and corrective actions.

No.	Limitation	Action
1	Non-random selection of employee samples	This limitation is mitigated by the fact that the sample in the study was relatively large in number and demographically diverse, including in terms of education, age, sex, length of service and type of work, but also employment sector (private vs. public).
2	Partial application of face-to-face survey methods in CWB measurement	Face-to-face surveys reduce employees’ sense of anonymity. Therefore, only 10% of the total data was collected in this way, and the rest using an online survey (guaranteeing anonymity). Furthermore, about 20% of data collected by face-to-face survey had zero variance (practically the only answer was “never”). It was therefore right to use a triangulation of measurement methods, including indirect methods. The analysis excluded those questionnaires for which variance of CWB was 0.
3	The quantitative nature of scales for measuring quality of interpersonal relationships at work and counterproductive behaviors	Quantitative research has certain limitations, particularly for such complex and dynamic issues as the quality of relationships and CWB. Nevertheless, validated scales were used in the measurement, making the collected data highly reliable, as measured by Cronbach’s alpha coefficient.

Source: author’s own work.

In considering the above limitations of the author’s research, it should be stated that the presented results are exploratory in nature. It is therefore important for subsequent research in this area to measure the impact that quality of relationships at work has on CWB using a representative sample of employees. It would seem important to differentiate the organizations surveyed by industry, size, ownership type, degree of internationalization, etc. It would also appear of interest to analyze the non-governmental sector separately, given that its operations have a certain particularity.

In future studies on the impact that quality of interpersonal relations at work has on CWB, an augmented research model should be proposed that would take into account the impact not only of employees’ demographic features, but also of the determinants of relationship quality mentioned in the first part of the article (and these should first be operationalized). These are: satisfaction, the mutual dependence of employees, commitment, trust, the traits and similarity of parties, duration of relationship, frequency of interaction, emotions, investment in relationships, communication, organizational culture and atmosphere, and relationships outside of work.

It should also be remembered that the use of a measuring scale created in specific cultural conditions (e.g., CWB-C, QIRT-S) requires adaptation to the conditions of any study, and separate validation. This is indicated by, for example, the fact that, in the structural model of the impact that category of quality of interpersonal relationships at work has on particular CWB categories as presented by Szostek [57], as many as three of the categories had to be eliminated (sabotage, work avoidance and disruption of work). This was due to the low values of Cronbach’s alpha for these categories (below 0.5). This may mean that the variables that comprise these categories are not measuring the same phenomena.

Supplementary Materials: Research data file with all observations (<https://drive.google.com/file/d/1kLlpOvdyCRvoym6Eb6qOocPVVcEIWGFE/view?usp=sharing>).

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Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1. Counterproductive Work Behavior Checklist (CWB-C).

How often have you done each of the following things on your present job? (1—never, 2—one or two times, 3—one or two times per month, 4—one or two times per week, 5—every day)						Dimensions of CWB	
						I	O
1. Purposely wasted your employer's materials/supplies	1	2	3	4	5		X
2. Daydreamed rather than did your work	1	2	3	4	5		X
3. Complained about insignificant things at work	1	2	3	4	5		X
4. Told people outside the job what a lousy place you work for	1	2	3	4	5		X
5. Purposely did your work incorrectly	1	2	3	4	5		X
6. Came to work late without permission	1	2	3	4	5		X
7. Stayed home from work and said you were sick when you weren't	1	2	3	4	5		X
8. Purposely damaged a piece of equipment or property	1	2	3	4	5		X
9. Purposely dirtied or littered your place of work	1	2	3	4	5		X
10. Stolen something belonging to your employer	1	2	3	4	5		X
11. Started or continued a damaging or harmful rumor at work	1	2	3	4	5	X	
12. Been nasty or rude to a client or customer	1	2	3	4	5		
13. Purposely worked slowly when things needed to get done	1	2	3	4	5		X
14. Refused to take on an assignment when asked	1	2	3	4	5		X
15. Purposely came late to an appointment or meeting	1	2	3	4	5		X
16. Failed to report a problem so it would get worse	1	2	3	4	5		X
17. Taken a longer break than you were allowed to take	1	2	3	4	5		X
18. Purposely failed to follow instructions	1	2	3	4	5		X
19. Left work earlier than you were allowed to	1	2	3	4	5		X
20. Insulted someone about their job performance	1	2	3	4	5	X	
21. Made fun of someone's personal life	1	2	3	4	5	X	
22. Took supplies or tools home without permission	1	2	3	4	5		X
23. Tried to look busy while doing nothing	1	2	3	4	5		X
24. Put in to be paid for more hours than you worked	1	2	3	4	5		X
25. Took money from your employer without permission	1	2	3	4	5		X
26. Ignored someone at work	1	2	3	4	5	X	
27. Refused to help someone at work	1	2	3	4	5	X	
28. Withheld needed information from someone at work	1	2	3	4	5	X	
29. Purposely interfered with someone at work doing his/her job	1	2	3	4	5	X	
30. Blamed someone at work for error you made	1	2	3	4	5	X	
31. Started an argument with someone at work	1	2	3	4	5	X	
32. Stole something belonging to someone at work	1	2	3	4	5	X	
33. Verbally abused someone at work	1	2	3	4	5	X	
34. Made an obscene gesture (the finger) to someone at work	1	2	3	4	5	X	
35. Threatened someone at work with violence	1	2	3	4	5	X	
36. Threatened someone at work, but not physically	1	2	3	4	5	X	
37. Said something obscene to someone at work to make them feel bad	1	2	3	4	5	X	
38. Hid something so someone at work couldn't find it	1	2	3	4	5	X	
39. Did something to make someone at work look bad	1	2	3	4	5	X	
40. Played a mean prank to embarrass someone at work	1	2	3	4	5	X	
41. Destroyed property belonging to someone at work	1	2	3	4	5	X	
42. Looked at someone at work's private mail/property without permission	1	2	3	4	5	X	
43. Hit or pushed someone at work	1	2	3	4	5	X	
44. Insulted or made fun of someone at work	1	2	3	4	5	X	
45. Avoided returning a phone call to someone you should at work	1	2	3	4	5		

Categories of CWB and their related checklist item numbers: (1) abuse against others: 11, 12, 20, 21, 26, 30, 31, 33–37, 39, 40, 42–44; (2) production deviance: 5, 13, 18; (3) sabotage: 1, 8, 9; (4) theft: 10, 22, 24, 25, 32; (5) withdrawal: 6, 7, 17, 19. Source: author's own work based on [85].

Table A2. Quality of Interpersonal Relationships in the Team Scale (QIRT-S).

To what extent do you think the following statements apply to the work team you belong to? (please respond to each)	Strongly disagree	Somewhat disagree	Hard to say	Somewhat agree	Strongly agree
1. In the team we talk about private matters	1	2	3	4	5
2. In the team we know a lot about each other	1	2	3	4	5
3. In the team we can predict each other's behavior and reactions	1	2	3	4	5
4. In the team we respond to each other's needs	1	2	3	4	5
5. We have direct contact with each other in the team	1	2	3	4	5
6. In the team, we are not afraid to voice opinions critical of the company	1	2	3	4	5
7. In the team, we're not afraid to say difficult things to each other	1	2	3	4	5
8. We speak honestly with each other in the team	1	2	3	4	5
9. We are not afraid to show negative emotions in the team	1	2	3	4	5
10. In the team we show each other positive emotions	1	2	3	4	5
11. In the team, we help each other solve private problems	1	2	3	4	5
12. We joke with each other in the team	1	2	3	4	5
13. We like each other in the team	1	2	3	4	5
14. The team has social contact after work (e.g., we go to the cinema, the pub)	1	2	3	4	5
15. In the team, we show interest in each other's private matters	1	2	3	4	5
16. In the team, we share knowledge that is useful in private life	1	2	3	4	5
17. In the team, we can talk to our supervisor about everything	1	2	3	4	5
18. Our team's supervisor has a "human approach"	1	2	3	4	5
19. There is freedom of discussion within the team	1	2	3	4	5
20. In the team, the supervisor assigns us clear responsibilities	1	2	3	4	5
21. In the team, the supervisor treats us all fairly	1	2	3	4	5
22. In the team, supervisors have social contact with subordinates	1	2	3	4	5
23. In the team, supervisors show an interest in employees' private matters	1	2	3	4	5
24. In the team, we effectively carry out our duties	1	2	3	4	5
25. In the team, we share the knowledge needed to accomplish tasks	1	2	3	4	5
26. We come to work happily	1	2	3	4	5
27. In the team, we help each other solve work-related problems	1	2	3	4	5
28. In the team, supervisors communicate all information (both good and bad) to subordinates	1	2	3	4	5
29. We are happy in the team	1	2	3	4	5
30. We work together in the team	1	2	3	4	5
31. We are loyal to each other in the team	1	2	3	4	5
32. We stick together in the team	1	2	3	4	5
33. We trust each other in the team	1	2	3	4	5
34. In the team we are good at overcoming internal conflicts and tensions	1	2	3	4	5
35. There is a good atmosphere in the team	1	2	3	4	5
36. There is no jealousy within the team	1	2	3	4	5
37. Within the team, we are discreet with one another on issues that are important to us	1	2	3	4	5
38. We treat each other well in a team	1	2	3	4	5
39. The company wants team relations to be positive	1	2	3	4	5
40. The company promotes teamwork	1	2	3	4	5
41. The company conducts regular consultations/meetings with employees/employee opinion surveys	1	2	3	4	5
42. The company considers existing relationships when selecting new employees for the team	1	2	3	4	5
43. The company cares that the workplace is attractive and well equipped	1	2	3	4	5
44. There is a person in the team who takes care of the positive atmosphere	1	2	3	4	5
45. Communication is effective in the team	1	2	3	4	5
46. We are not attached to a hierarchy or to formality in the team	1	2	3	4	5
47. In the team, we are not afraid to ask each other questions or for help in work matters	1	2	3	4	5
48. In the team, we are not afraid to ask each other questions or for help in private matters	1	2	3	4	5
49. The team eats meals, drinks coffee/tea, etc. together	1	2	3	4	5
50. In the team we are able to listen to each other	1	2	3	4	5
51. We understand each other well in the team	1	2	3	4	5
52. We are involved in how the team functions	1	2	3	4	5
53. Being in the team gives us positive energy	1	2	3	4	5
54. In the team we are empathetic and polite to one other	1	2	3	4	5
55. In the team we are not afraid to admit to mistakes	1	2	3	4	5
56. In the team we celebrate important events together (e.g., birthdays, saint days, anniversaries, successes)	1	2	3	4	5
57. In the team we talk about work-related issues	1	2	3	4	5
58. In the team we share ideas on how to improve tasks	1	2	3	4	5

Relationship quality categories and their related statements: (1) organizational climate: 8,12,19,24–27,29–38,44,45,47,50–55,57,58; (2) interpersonal ties: 1–7,9–11,13–16,48,49,56; (3) interpersonal relationship building methods: 39–43; (4) distance resulting from management style: 17,18,20–23,28,46. Source: [57] (p. 244–247).

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