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# Mutual understanding and cooperation between patient and psychotherapist in psychotherapy

## Evaluation of the goodness-of-fit of measurement by means of the Working Alliance Inventory (WAI) questionnaire

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**ABSTRACT**

**Objective**
This article presents the results of the efforts on the Polish adaptation of the WAI questionnaire, gathered from several publications to date and from the current analysis. The tool, after several years of research with its application and estimation of psychometric properties, can be recommended to take measurement of the quality of the psychotherapeutic relationship.

**Theses**
The focus is on the key function of the psychotherapeutic relationship towards generating positive performance in the treatment of health problems. Globally there are many tools to assess the quality of a psychotherapeutic relationship. To date the Polish psychologists and psychotherapists have not had such tools at their disposal.

**Conclusions**
Analysis of the reliability of three of the four versions of the questionnaire (WAI-PC, WAI-PT, WAI-R, WAI-SUM) showed that the measurement made by the scale can be considered reliable. Evidence is presented verifying the alliance structure in action. Confirmatory factor analysis confirmed the three-dimensional structure of the psychotherapeutic alliance. The WAI questionnaire showed satisfactory theoretical validity. The WAI questionnaire in its 36-item version is a consistent tool that can be successfully used in research.

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**Keywords:** Bordin pantheoretical model of psychotherapeutic relationship, Working Alliance Inventory, Working Alliance Inventory (WAI) questionnaire, WAI reliability, WAI validity

## Introduction

The function and value of the psychotherapeutic relationship vis-à-vis obtaining positive treatment outcomes for the health problems of patients receiving psychotherapy, whether its effects are operationalized by improvements in experienced symptoms or increases in subjective well-being, is rarely questioned at present (Crits-Christoph, Gallop, Gaines, Rieger, & Connolly Gibbons, 2020; Del Re, Flückiger, Horvath, & Wampold, 2021). It is assumed that an optimized mutual agreement for the patient and psychotherapist to work together is the key and most important non-specific factor for the patient's recovery or at least an improvement in the quality of life (Larsson, Falkenström, Andersson, & Holmqvist, 2018). This factor is non-specific, by which is meant its independence from the modality of the psychologist or psychotherapist working in a particular theoretical orientation.

Although, like theorists, practitioners also pay attention to the value of the psychotherapeutic relationship in the process of recovery, it is rare to find works devoted to this subject in Polish conditions (Czabała, 2013). On the other hand, it is even rarer to find empirical works in which conclusions are supported by an empirical study based on a previously conducted reliable and accurate measurement of the psychotherapeutic relationship (Cierpiałkowska & Kubiak, 2010). In Poland, there is a lack of measurement tools, although there are many in the world, and their diversity reflects the coexisting ways of understanding what a psychotherapeutic relationship is (Gelso, 2014; Horvath, 2018).

The purpose of this article is to present to a wide range of psychotherapy researchers and practitioners, psychologists and psychotherapists, working on a daily basis in various forms of psychological assistance, the WAI questionnaire – an instrument that, after several years of research with its use and estimation of psychometric properties, can be recommended to conduct measurement of the quality of the psychotherapeutic relationship as reliable and accurate. The current article collects most of the evidence from the Polish studies on the goodness-of-fit of WAI measurement and presents this tool.

## Psychotherapeutic Relationship – the Bordin Model

There are many valuable theoretical proposals for understanding and defining the psychotherapeutic relationship (Gelso, 2014). Empirical attempts to determine its content and structure (Cirasola, Midgley, Fonagy, Impact Consortium, & Martin, 2020) have not yielded clear-cut decisions on which theoretical model can be

leading and reliable. However, most researchers agree on one thing, that the psychotherapeutic relationship is a multidimensional construct (Horvath, 2018).

The canonical proposal is Bordin's (1979; 1994) pantheoretical model, in which the core of the psychotherapeutic relationship is called a Working Alliance Inventory. The name "pantheoretical" indicates the universality of this model, elements of which are found in every psychotherapeutic relationship. Thus, within the framework of this proposal, it is possible, according to the creator, to study and estimate the patient-psychotherapist relationship in all psychotherapeutic modalities. The psychotherapeutic relationship is not understood here as a consultation in the sense of giving suggestions or making recommendations to the patient (Rogers, 1951; 1957), nor as a relationship of guidance or facilitation, understood as comprehensive support to the development of the patient's resources (LaCrosse, 1980). In terms of meaning, it is more akin to the concept of matching parties (Kohut, 1984) or therapeutic partnerships (McWilliams, 2018). The Working Alliance Inventory is an active factor and is dynamic in nature, meaning that it changes during the psychotherapy process (Halfon, Özsoy, & Çavdar, 2019).

The criterion of distinction with the above-mentioned ways of capturing the psychotherapeutic relationship is, in the case of the Working Alliance Inventory, the dimension of reciprocity of agreement (Bordin, 1979). The concept of alliance indicates the existence, and most strongly emphasizes, the component of cooperation and compliance between psychotherapist and patient in order to realize a specific change in psychotherapy (Horvath, 2018). Bordin (1994) indicates that the patient accepts the mutually agreed upon intervention and actively decides and participates in it. The aforementioned definitions, while noting that a psychotherapist is more like someone who resembles a counsellor, did not take into account the importance of cooperation and the degree of consent that the patient has toward the psychotherapist's proposed treatment.

In the Bordin model, the alliance is three-dimensional in nature, and the patient and psychotherapist do not differ in their competence to determine the manner and quality of implementation of a particular change in psychotherapy. The process of recovery takes place through achieving set goals – the cognitive component of the alliance – and completing tasks – the behavioural component of the alliance (Horvath & Greenberg, 1989). Mutual agreement and cooperation on goals and objectives, and the effectiveness of their implementation, are made possible by the developing bond-affective component of the alliance: the feeling of being accepted, understood and liked (Gaston, 1990). The first two dimensions are usually, though not exclusively, specified in the first meetings, which for psychotherapists are also sessions that diagnose the patient's health problem (Klajs, 2017). The third dimension is developed throughout the psychotherapeutic process, as mutual trust and attachment is a process that is impossible to build optimally in the first few sessions (Prusiński, 2020).

The patient's ability to participate in the decision-making process is an important characteristic of the psychotherapeutic relationship in this model. In other forms of institutional support, such as in health care institutions, denying the party seeking support and assistance the opportunity to speak out and influence staff decisions leads to delegitimisation of authority and counter-suggestive

behaviour (Prusiński, 2022). Having the opportunity to co-determine by speaking up and being heard, often referred to in the literature as the "voice effect" (Tyler, 2021), seems psychologically important because it allows the individual to feel that they are important and included in the treatment process (Holopainen, Simpson, Piirainen, Karppinen, Schütze, Smith, O'Sullivan, & Kenti, 2020). By giving her opinion, she controls the decision-making process and influences the end result in the form of on-going recommendations and resolutions, yet the latter concern herself and the important value of her health (Mentovich, Rhee, & Tyler, 2014). In addition, the possibility of co-determination is a way to cope with on-going uncertainty, which is an aversive condition that the sick patient experiences in excess (Pérez-Arechaederra, 2019). These are strong motives whose satisfaction seems crucial, hence the Bordin way of understanding the psychotherapeutic relationship is considered not only an optimal descriptive model, but also an exploratory one (Horvath, 2018).

## Working Alliance Inventory (WAI) Questionnaire

Soon the theoretical model (Bordin, 1979) lived to see its first operationalization in the form of a measurement method called Working Alliance Inventory (WAI for short; Working Alliance Inventory questionnaire; Horvath & Greenberg, 1989). Two versions of the questionnaire were prepared: for the patient and the psychotherapist. The tool's items were formulated according to the three previously mentioned alliance factors: (1) the quality of agreement on goals relating to a shared understanding of the changes sought by the therapeutic process, (2) the quality of agreement on the tasks necessary to accomplish such goals, and (3) the quality of the bonds indicating the nature of the relationship between psychotherapist and patient (Bordin, 1979). Since then, the WAI tool has been subjected to psychometric evaluation, with mixed results, especially in terms of factor validity.

They recommended using the tool (Horvath, 1994) in as varied professional assistance situations as possible. The WAI questionnaire is designed for more than just measuring relationships in psychotherapy. Globally, it has been widely used in studies estimating the quality of the relationship between the helper and those seeking other means of support. There are WAI versions designed to estimate the quality of relationships in other fields: career counselling (Milot-Lapoint, Le Corff, & Savard, 2020; Perdrix, de Roten, Kolly, & Rossier, 2010), physiotherapy (Hall, Ferreira, Maher, Latimer, & Ferreira, 2010), rehabilitation (Paap, Schepers, & Dijkstra, 2020), education – especially teacher-student relationships (Toste, Heath, McDonald Connor, & Peng, 2015), medicine (Petek, Pušnik, Selič, Cedilnik-Gorup, Trontelj, Riou, & Le Reste, 2019) or social work (Guédeney, Fermanian, Curt, & Bifulco, 2005). Many studies have confirmed the psychometric value of measuring with the 36-item WAI scale, although there have also been some key inaccuracies over more than three decades.

To the best of our knowledge, based on data from the Society for Psychotherapy Research, as well as knowledge from reviews carried out to date on the WAI (Paap,

Karel, Verhagen, Dijkstra, Geertzen, & Pool, 2022), and considering only those publications about the questionnaire where the authors, in assessing the goodness of measurement of the WAI, met the rigorous standards and guidelines for presenting the necessary assessments for tools from the health area (COSMIN; Mokkink, Prinsen, Bouter, de Vet, & Terwee, 2016), it should be noted that 66 psychometric validations of the WAI were carried out between 1989 and 2021. The methods used around the world to analyse WAI's measurement properties are quite diverse and also in the performance layer they generate different results. The rate of new publications in this field has been increasing in recent years. The highest growth rate in the number of WAI studies (23 research papers) was recorded in the last five years. This shows that interest in the alliance issue is high, and the construct itself is important and significant in the health area.

A key issue is that it is still vague, which factor structure is appropriate and which identifies the actual dimensions of the psychotherapeutic alliance. The quantitative and semantic inconsistency of the factors with the assumed theoretical structure of the questionnaire is detected. Some studies confirmed that the alliance has a three-factor structure, consistent with the Bordin model (Hatcher, Barends, Hansell, & Gutfreund, 1995; Horvath & Greenberg, 1989; Hukkelberg & Ogden, 2016; Munder, Wilmers, Leonhart, Linster, & Barth, 2009; Prusiński, 2021a), when other results confirmed two structural dimensions of the alliance: goals and tasks (Andrusyna, Tang, DeRubeis, & Luborsky, 2001). The Toste's (2015) team carried out multilevel factor analyses that supported a two-factor model representing the emotional and collaborative elements of the relationship. Different alliance structures were also obtained, including univariate alliance, depending on which version of the tool (patient's or psychotherapist's) and in which age category of patients was used for taking measurements (Prusiński, 2021a).

What should be noted is that the WAI's internal consistency analyses show the homogeneity of the scale as well as the subscales. Only occasionally do studies record Cronbach's α values less than .85 for the total score (Bat Or, 2019) and less than .80 for the subscales (Hsu & Yu, 2017).

## Polish WAI Version

In the Polish psychology and psychotherapy, the English WAI version is well known to both theorists and practitioners. However, we have only recently been operating a Polish version of the tool. The first empirical analyses using it are also appearing (Cierpiałkowska & Kubiak, 2010), followed by the first psychometric validations (Prusiński, 2021a; Prusiński, 2021b).

### Adaptation Process

The process of adapting the WAI scale started with obtaining official approval from the author of the original scale. The permission to prepare a Polish

adaptation of the tool was given by Professor Adam Horvath and the Society for Psychotherapy Research, which currently holds WAI copyright. The version translated from English into Polish by Prof. Lidia Cierpiałkowska and Dr. Jowita Kubiak was used for validation. In determining the final wording of test items, consideration was given not only to their linguistic correctness, but also to their semantic and functional equivalence with the original (Prusiński, 2021a).

The version of the tool prepared in this way was tested on a sample of 7 people to make a baseline assessment of whether the instructions and scale items were comprehensible for the respondents. Three women and four men (aged 23–26, with secondary and higher education) were examined. After completing the questionnaire, the respondents were invited to participate in the interview carried out by the study investigator, during which they could share their feelings related to scale completion. The respondents were also asked whether the instructions and questions were clear and comprehensible, and whether any of the questions raised any doubts or caused difficulties. The respondents rated the questionnaire as comprehensible, though also as basically attention-grabbing. This version of questionnaire was no longer corrected. The version of the scale prepared in this manner was treated as the final version, intended for research.

## WAI Design

The prepared WAI Polish version is the full version of the tool. It has two parallel versions: one for the patient/customer (WAI-PC) and one for the psychotherapist (WAI-PT). A questionnaire is a small notebook that contains both items and some space to provide answers. The questionnaire consists of four pages. At the beginning of the first page the acronym of the full name of the tool is placed as well as information for whom the tool is intended, the authors of the tool and the author of the Polish adaptation are provided, which are then followed by the instructions. The rest of the first page is filled with questionnaire items. The response scale is placed underneath each item. The second and third pages contain the consecutive items of the questionnaire with their accompanying response scales. The key for score calculation is provided on a separate sheet of paper (fourth page; included in the Appendix No. 2, pp. 132–134). Each version of the WAI consists of 36 analogous statements operationalizing the construct of cooperation in therapy, as well as three dimensions of the alliance: Goals Arrangement (abbreviated as Goals), Agreement on Tasks (abbreviated as Tasks), and Built Bond (abbreviated as Bond). Each subscale is made of 12 items. The respondents provide answers on a 7-point Likert scale from Never to Always.

## Respondents

WAI is designed to measure the quality of the relationship between patient and psychotherapist. Pilot studies on Polish validation samples were carried out in parallel on both patients and psychotherapists. Adults were studied: patients

with an average age of 36 and psychotherapists with an average age of 42. The WAI questionnaire is therefore designed to survey adults. The full structure (gender, age, etc.) of the validation samples is shown in Table 1 (pp. 116–117).

## Carrying Out the Survey

Testing with the WAI questionnaire can be done individually or in small groups. Although there are no valid reasons for not conducting the survey in groups, in the Polish validation samples, the WAI questionnaire survey was carried out individually. Thus, the psychometric characteristics of the tool were established on the grounds of individual studies.

The WAI survey is anonymous. The respondents do not sign the WAI sheet. After reading the instructions, the respondent proceeds to answer the following items, marking his answers on the sheet provided. Response time is not limited or measured. On average, it is 15 minutes.

The measurement can be carried out using one WAI version (examine only the patient or the psychotherapist) or can carried out in parallel using two versions (examine the patient and the psychotherapist). Carrying out alliance estimation with both the patient and his psychotherapist allows to boost outcome certainty and, consequently, to boost confidence in drawing conclusions about the quality of the psychotherapeutic alliance. This is because bilateral measurement of the alliance minimizes potential measurement errors associated with under- or overestimation of the alliance occurring on either side of the psychotherapeutic dyad (Nissen-Lie, Solbakken, Falkenström, Wampold, Holmqvist, Ekeblad, & Monsen, 2021; Prusiński, 2021a).

Using the key, you can calculate the score. Some of the positions are reversed, and are marked with the letter R next to the position in the key. The raw score is the total points. A minimum of 36 points can be obtained in the total score (WAI-PC and WAI-PT) and 72 points in the total score (WAI-SUM) and 12 points in each subscale, respectively 24 for the subscales in the WAI-SUM. A maximum of 252 points can be won in the total score (WAI-PC and WAI-PT) and 504 points in the total score (WAI-SUM), and 84 points in each subscale, respectively 168 points for the subscales in the WAI-SUM.

As announced earlier, this paper aims to present the psychometric values, especially the measurement validity and measurement reliability of the Polish version of WAI questionnaire. The data presented below comes from various sources (relevant source designations appear in the notes below subsequent tables), mainly from the validation author's foreign publication devoted to alliance research. However, due to the limitations in accessing this major publication and the difficulty in reading the English-language text experienced by some practicing psychologists, an article has been prepared to make the scale more accessible and familiar in Poland. The WAI scale has not been presented in any of the publications to date. In the current publication, the WAI scale is appended at the end of the paper (Appendices Nos. 1 and 2, pp. 131–134).

Table 1

*Characteristics of empirical studies and structure of validation samples*

| Publication | WAI version | Sub-scales (number of items) | Estimated measurement properties | Description of patient and psychotherapist populations | *n* | Gender (*n*, %) | Age (*M*, *SD*) |
|---|---|---|---|---|---|---|---|
| Prusiński (2020) preliminary survey (pilot) | WAI-PC | C (12)<br>Z (12)<br>W (12) | validity: CFA; | P: individual psychotherapy; | 85 P | P:<br>K (57, 67%)<br>M (28, 33%) | P: 17–70<br>(*M* = 36.28;<br>*SD* = 11.44) |
| | WAI-PT | C (12)<br>Z (12)<br>W (12) | validity: CFA; | T: work modality: psychoanalytic, psychodynamic, Ericksonian, systemic, humanistic, Gestalt; | 55 T | T:<br>K (41, 74.5%)<br>M (14, 25.5%) | T: 28–58<br>(*M* = 41.38;<br>*SD* = 8.52) |
| | WAI-SUM | C (12)<br>Z (12)<br>W (12) | validity: CFA, INTR; reliability; | | | | |
| | WAI-R | C (12)<br>Z (12)<br>W (12) | validity: CFA | | | | |
| Prusiński (2021a) main survey | WAI-PC | C (12)<br>Z (12)<br>W (12) | validity: CFA, INTR*; reliability; | P: individual psychotherapy; | 262 P | P:<br>K (132, 50.4%)<br>M (130, 49.6%) | P: 18–80<br>(*M* = 35.23;<br>*SD* = 11.89) |
| | WAI-PT | C (12)<br>Z (12)<br>W (12) | validity: CFA, INTR*; reliability; | T: work modality: psychoanalytic or psychodynamic (25.6%), cognitive-behavioural (30.9%), Ericksonian (12.2%), systemic (11.5%), humanistic (4.2%), Gestalt (8.8%); | 166 T | T:<br>K (111, 66.9%)<br>M (55, 33.1%) | T: 27–64<br>(*M* = 42.9;<br>*SD* = 9.04) |
| | WAI-SUM | C (12)<br>Z (12)<br>W (12) | validity: CFA; reliability; | | | | |
| | WAI-R | C (12)<br>Z (12)<br>W (12) | validity: CFA; reliability | | | | |

Continuation of Table 1

| Publication | WAI version | Sub-scales (number of items) | Estimated measurement properties | Description of patient and psychotherapist populations | *n* | Gender (*n*, %) | Age (*M*, *SD*) |
|---|---|---|---|---|---|---|---|
| Prusiński (2021b) | WAI-PC | C (12)<br>Z (12)<br>W (12) | validity: MZN; reliability | P: individual psychotherapy, consultation phase (2–4 sessions); | 22 P (PE: 11; PK:11) | PE: K (7, 63,6%) M (4, 36,4%) | PE: 25–47 (*M* = 34,82; *SD* = 6,57) |
| | | | | | | PK: K (8, 72,7%) M (3, 27,3%) | PK: 28–50 (*M* = 36,09; *SD* = 6,86) |
| | | | | T: work modality: systemic | 2 T | T – N/A | T – N/A |

*Notes*. WAI-PC – version of the tool designed for the patient, WAI-PT – version of the tool designed for the psychotherapist, WAI-SUM – additional measurement proposition of the Working Alliance Inventory, weighted from the sum of the patient's and psychotherapist's individual ratings, WAI-R – additional measurement proposition of the Working Alliance Inventory, weighted from the difference of the patient's and psychotherapist's individual ratings, C – subscale Agreeing on Goals, Z – subscale Agreement on Tasks, W – subscale Development of Ties, *M* – mean, *SD* – standard deviation, CFA – Confirmatory Factor Analysis, MZN – method of non-random variation, INTR – intercorrelations of subscales, P – patient, T – psychotherapist, PE – patients in the experimental group, PK – patients in the control group, K – female, M – male.

* the published version did not include information on the intercorrelation of WAI subscales, although they were counted

## Results

Information about the individual criteria and goodness-of-fit score values of the WAI measurement is taken from several publications written in 2019–2022. Major publications have published in the *Polish Psychological Forum* (Prusiński, 2020), *Journal of Contemporary Psychotherapy* (Prusiński, 2021a) and *The Review of Psychology* (Prusiński, 2021b), and data specifically from these publications is presented below. The author of this paper has obtained written permissions to reprint data from the earlier publications. Table 1 presents the characteristics of the empirical studies and the structure of the research samples on which the validation analyses were made (see: Table 1, pp. 116–117).

### WAI Validity

In two out of three publications (Prusiński, 2020; Prusiński, 2021a), shown in Table 1, the main evidence of measurement validity came from the results of factor structure analyses using confirmatory factor analysis (CFA). The fit of the classic Bordin model (Bordin, 1979) including three latent factors and the metaspecific Working Alliance Inventory meta-variable to a measurement model supported by empirically derived assessments from the patient (WAI-PC) or psychotherapist (WAI-PT) was tested. Verification of the validity of the three-factor structural model was reinforced by two additional measurement models, still derived from the same patient-therapist dyad: the differences between the measurement scores from the patient and psychotherapist versions of the questionnaire (WAI-R) and the sum of measurement scores from both patient and psychotherapist versions of the questionnaire (WAI-SUM).

Especially the latter solution subjected to confirmatory analyses is substantiated at length. As already mentioned, a review of previous research projects indicates that researchers basing alliance estimation on only one person from the psychotherapeutic process dyad locate their conclusions in underestimating or overestimating the quality of the psychotherapeutic alliance (Nissen-Lie et al., 2021). The source of the alliance evaluation is considered a key factor affecting the value of the obtained estimate (Hartmann, Joos, Orlinsky, & Zeeck, 2015). The existence of regular underestimations of alliance quality on the part of the psychotherapist has been established (Hartmann et al., 2015; Tryon, Blackwell, & Hammel, 2007). It is also noted that existing convergences in assessments of the alliance between patient and psychotherapist change as psychotherapy moves forward. The results of Marmarosh and Kivlighan's (2012) study showed that the psychotherapist and patient expressed greater agreement on the assessment of perceived alliance on the onset of treatment rather than in the long run. A more recent study, which used repeated measurements of ratings of the therapeutic bond between patient and psychotherapist, found evidence that, on the one hand, therapists' ratings were systematically lower than patients' ratings, and, on the other hand, showed an opposite relationship to that

discovered earlier. The discrepancy between their viewpoints narrowed during psychotherapy (Atzil-Slonim, Bar-Kalifa, Rafaeli, Lutz, Rubel, Schiefele, & Peri, 2015). This relationship is also confirmed by Laws' team (2017), pointing out the phenomenon of the build-up of consensus ratings during the psychotherapeutic process.

Therefore, in order to protect the measurement of the psychotherapeutic alliance from the possible estimation error discussed above, the idea of a measurement combining patient and psychotherapist assessment, described in the literature, was used, allowing the study of the dynamics of the development of the interpersonal level alliance and eliminating possible underestimations and overestimations to be considered (Muran, Eubanks, & Samstag, 2019). The Laws team (2017) and Prusiński (2021a) suggest using a summed assessment derived from the patient-therapist dyad.

In addition, evidence was sought for the theoretical validity of the measurement for the patient version (WAI-PC), using the non-random variation method. A quasi-experimental study was carried out (Prusiński, 2021b). Table 2 (p. 120) summarizes some information about the WAI validity.

In a pilot study (Prusiński, 2020), after analysing the fit indices of the theoretical model with the measurement model, and after checking and interpreting the values of the path parameters and variances estimating the model, the three-factor sum model (WAI-SUM), weighted (derived) from the patient's and psychotherapist's individual ratings of alliance quality, was found to be the best. This decision was based in particular on the Steiger-Lind RMSEA index. Its value was .03, indicating a good fit of the three-factor model to the population data. The decision was also based on the values of the path parameters λ. As for the two separated (separate) models basing the assessment of the psychotherapeutic alliance only on the measurement of the psychotherapist's (WAI-PT) or patient's (WAI-PC) assessment, and the model embedded in the difference of the patient's and psychotherapist's individual assessments (WAI-R), the interpretation of the path coefficient values of these models showed their mediocre and unacceptable values.

Based on a larger population of psychotherapists and patients, the findings of the main study (Prusiński, 2021a) involving indexes of the fit of theoretical model to the measurement model and the values of the path parameters (Table 2, p. 120) and the variances estimating the model also allowed to recognise that the three-factor structure of the Working Alliance Inventory was reproduced.

A match was obtained between the classical structural model of the Working Alliance Inventory (Bordin's proposal: Bordin, 1979) and empirical data both when the assessment was obtained from the patient (WAI-PC) and when the assessment of the psychotherapy process was formulated by the psychotherapist (WAI-PT). A factor structure fit of the three-factor sum model (WAI-SUM) was also obtained, which was characterized by mostly good fit indices and path parameter values λ. The three-factor difference model (WAI-R) was rejected due to low values of the factor loadings of the regression coefficient λ. Most of the loads obtained values below .4, which, however, does not preclude further research into the measurement properties of this version of the WAI.

Table 2

*WAI validity*

| Publication | WAI version | CFA | | | | | | | | MZN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $\chi^2$ | $\chi^2/df$ | *RMSEA* | *GFI* | *CFI* | *ECVI* | *MECVI* | *M* (λ) | WAI dimension | group | *M* | *SD* | *t*(*df*) |
| Prusiński (2020) | WAI-PC | 596.88 | 1.01 | .01 | .60 | – | – | – | – | n/a | | | | |
| | WAI-PT | 559.59 | .95 | .01 | .63 | – | – | – | – | | | | | |
| | WAI-SUM | 645,11 | 1.09** | .03 | .57 | – | – | – | – | | | | | |
| | WAI-R | 541.50 | .92 | .01 | .64 | – | – | – | – | | | | | |
| Prusiński (2021a) | WAI-PC | 895.61 | 1.51* | .04 | .81 | .24 | 4.01 | 4.1 | .882** | | | | | |
| | WAI-PT | 865.72 | 1.46* | .04 | .82 | .27 | 3.89 | 3.99 | .823** | | | | | |
| | WAI-SUM | 883.06 | 1.49* | .04 | .81 | .26 | 3.96 | 4.05 | .876** | | | | | |
| | WAI-R | 972.80 | 1.65* | .05 | .83 | .73 | 3.30 | 3.40 | .422** | | | | | |
| Prusiński (2021b) | WAI-PC | n/a | | | | | | | | Alliance | E | 197.55 | 6.10 | 18.44* (20) |
| | | | | | | | | | | | K | 135.09 | 9.43 | |
| | | | | | | | | | | C | E | 68.09 | 2.12 | 22.23* (20) |
| | | | | | | | | | | | K | 44.82 | 2.75 | |
| | | | | | | | | | | Z | E | 60.18 | 3.03 | 10.96* (20) |
| | | | | | | | | | | | K | 45.91 | 3.08 | |
| | | | | | | | | | | W | E | 64.09 | 2.34 | 13.37* (20) |
| | | | | | | | | | | | K | 44.36 | 4.30 | |

*Notes*. *CFA* – Confirmatory Factor Analysis, $\chi 2$ – chi2 statistic of model fit, *df* – number of degrees of freedom, $\chi 2/df$ – quotient of chi2 statistic and number of degrees of freedom, *RMSEA* – root mean square of approximation error; *GFI* – index of empirical matrix variation; *CFI* – index of relative fit, *ECVI* and *MECVI* – information criteria for comparing model quality, *M* (λ) – mean value of factor loadings of regression coefficient. – denotes that the information was not reported; Alliance – overall score, C – Goal arrangement subscale Z – Agreement on tasks subscale, W – Bond development subscale, MZN – non-random change method, E – experimental group, K – control group, *t* – Student's t-test for independent samples, *df* – degrees of freedom

*$p < .001$, **$p < .05$

In addition, a paper published in *The Review of Psychology* (Prusiński, 2021b) presented another piece of evidence for the WAI validity. The validity was estimated using a method other than classical factor-based analysis. The theoretical validity of the WAI-PC was experimentally estimated using the non-random change method proposed by Cronbach and Meehl (2005). This method uses an experimental procedure. It assumes the introduction of an experimental manipulation, which should affect the variable measured by the test, and then checks how sensitive the tool is to the manipulating factor at work and whether it will show in the measurement results its effect, i.e. the expected change.

Patients in the natural setting of private psychotherapy offices, receiving consultations prior to psychotherapy, were subjected to experimental manipulation by the psychotherapist running the session. It was hypothesized that if the questionnaire is a measure of alliance characterised by validity, then a manipulation involving a deliberate intensification of the psychotherapist's efforts to improve the quality of the therapist-patient relationship would affect scores on the WAI-PC in such a way that patients subjected to this manipulation would later declare a higher alliance on the questionnaire compared to patients in the control group. The results of comparisons of mean scores (t tests of equality of means for independent samples) obtained on the WAI-PC questionnaire by patients in the experimental and control groups (Table 2) showed statistically significant differences between the compared groups. WAI-PC scores were higher for patients in the experimental group, both for the overall alliance score and for scores on the three subscales: Goal Arrangement, Agreement on Tasks, Bond development.

## Intercorrelations of WAI subscales

Key information about the validity of the WAI tool in the WAI-PC, WAI-PT and WAI-SUM versions was provided by checking the correlations between its subscales. The Bordin's (1979) theoretical model, indicating the various components of the Working Alliance Inventory, does not clearly resolve the question of the relationship between the dimensions of the therapeutic alliance. From a psychometric point of view, subscales characterized by orthogonality (independence) provide a better opportunity to describe the therapeutic process itself and predict the outcome of therapy. The independence of the subscales makes it possible to assume that each alliance dimension contributes uniquely to the overall construct under consideration. Horvath and Greenberg (1989) emphasize that during the WAI scale development, they sought to maximize differences between subscales.

Horvath's (1981) and Moseley's (1983) research shows that there is significant overlap between all subscales of the alliance. The obtained correlations of .6–.9 indicate that the dimensions share covariance at a high level. Hatcher and Gillaspy's (2006) meta-analyses also failed to confirm full independence of the subscales. Correlations of the subscales (in the latter studies) were obtained at .5–.9. So far, the independence of the subscales has not been confirmed (Busseri & Tyler, 2003; Hukkelberg & Ogden, 2016).

Table 3

*The rho Spearman correlation coefficients of the WAI questionnaire subscales*

| WAI version/subscales | | WAI-PC | | WAI-PT | | WAI-SUM | |
|---|---|---|---|---|---|---|---|
| | | **Z** | **W** | **Z** | **W** | **Z** | **W** |
| WAI-PC | C | .93* | .88* | | | | |
| | Z | | .91* | | | | |
| WAI-PT | C | | | .91* | .86* | | |
| | Z | | | | .90* | | |
| WAI-SUM* | C | | | | | .87* | .66* |
| | Z | | | | | | .69* |

*Notes*. The correlation coefficients for the WAI-SUM subscales are from publications in the *Polish Psychological Forum*, the correlation coefficients for the WAI-PC and WAI-PT subscales were counted, additionally operating with data from the main survey; C – Goal arrangement subscale, Z – Agreement on tasks subscale, W – Bond development subscale

* = $p < .001$

The correlation coefficients shown in Table 3 confirmed the previous findings. The subscales remain significantly correlated. The results presented show that the correlations between the subscales are moderate to high and positive. The results presented show that the correlations between the subscales are moderate to high and positive.

## WAI Reliability

To check the reliability of WAI measurements, Cronbach's α internal consistency coefficients were calculated. In addition, reliability was sometimes calculated with Jöreskog's construct reliability (CR) index, Aranowska's γ coefficient and ϱ2 intra-class correlation coefficient. In the pilot study (Prusiński, 2020), reliability was estimated for WAI-SUM, while in the main study (Prusiński, 2021a), reliability was estimated for all solutions that were considered in the CFA (WAI-PC, WAI-PT, WAI-R, WAI-SUM). Evidence of measurement reliability was also collected from a third publication on the experiment (Prusiński, 2021b). In addition, standard error of measurement (SEM) values was counted in this paper for a complete picture of this dimension of measurement goodness-of-fit. Table 4 (p. 123) presents data on the reliability of WAI measurement.

The values of the estimators presented in Table 4 indicate that the measurement of the psychotherapeutic alliance made by the WAI scale has high, and sometimes excellent, reliability. The high reliability of the measurement applies to both the overall score and the results obtained for the individual dimensions of Working Alliance Inventory: Goals Arrangement, Agreement on Tasks, and Developing Relationships.

Table 4

*Reliability coefficients for the WAI total score and for the subscales and standard error of measurement values*

| Publication | Version WAI | WAI dimension | α | *CR* | Γ | $\varrho_2$ | SEM** |
|---|---|---|---|---|---|---|---|
| Prusiński (2020) | WAI-SUM | Alliance | .94 | .99 | .89 | .30 | 6.79 |
| | | C | .87 | .95 | .79 | .35 | 4.07 |
| | | Z | .87 | .96 | .79 | .36 | 3.65 |
| | | W | .81 | .92 | .71 | .26 | 3.84 |
| Prusiński (2021a) | WAI-PC | Alliance | .98 | .97 | .99 | .52 | 5.67 |
| | | C | .93 | .91 | .82 | .53 | 3.31 |
| | | Z | .93 | .91 | .82 | .53 | 3.23 |
| | | W | .93 | .91 | .82 | .53 | 3.16 |
| | WAI-PT | Alliance | .97 | .97 | .99 | .51 | 5.50 |
| | | C | .92 | .91 | .80 | .50 | 3.24 |
| | | Z | .92 | .91 | .81 | .49 | 3.25 |
| | | W | .94 | .91 | .83 | .56 | 2.97 |
| | WAI-R | Alliance | .84 | .97 | .93 | .13 | 5.52 |
| | | C | .60 | .96 | .37 | .11 | 3.17 |
| | | Z | .60 | .96 | .38 | .11 | 3.26 |
| | | W | .71 | .95 | .43 | .17 | 3.14 |
| | WAI-SUM | Alliance | .98 | .97 | .99 | .63 | 8.39 |
| | | C | .95 | .90 | .86 | .63 | 4.97 |
| | | Z | .95 | .90 | .87 | .63 | 4.81 |
| | | W | .96 | .90 | .88 | .65 | 4.65 |
| Prusiński (2021b) | WAI-PC | Alliance | .97 | not estimated* | | | 8.97 |
| | | C | .93 | | | | 3.17 |
| | | Z | .93 | | | | 3.09 |
| | | W | .93 | | | | 3.04 |

*Notes.* Alliance – WAI total score, C – Goal Arrangement subscale, Z – Task Determination subscale, W – Bond Development subscale, α – Cronbach's internal consistency coefficient, *CR* – Jöreskog's construct coefficient, γ – Aranowska's reliability coefficient, ϱ2 – intra-class correlation coefficient, SEM – standard error of measurement

* sample size ($n$ = 22) does not allow to carry out analyses

** not presented earlier in publications

The best reliability values are obtained by the patient version of the tool (WAI-PC), the psychotherapist version (WAI-PT) and the summed alliance assessment by the patient and psychotherapist (WAI-SUM). The reliability of the measure defined in the difference model (WAI-R) obtained borderline acceptable values for α and CR and below acceptable values for γ, ϱ2.

What significantly indicates the high reliability of the measurement made with the WAI tool are the values of the reliability coefficients of the latent variable counted according to Jöreskog's proposal. Even γ – the Aran reliability coefficient, which corrects for the loaded Jöreskog estimator – obtained moderate and satisfactory values.

The internal consistency values presented should be referred to those obtained in WAI validation analyses abroad. Table 5 summarizes the results for the measurement reliability coefficient values (α Cronbach's) for the WAI total score and for the subscales, derived from dozens of foreign analyses of this measurement goodness-of-fit criterion. As mentioned earlier, this is validation work dating back to 1989–2021 (Paap et al., 2022).

Table 5*

*Values of the internal consistency coefficient α Cronbach's for the WAI total score and for the subscales*

| WAI/dimension | *n* | $M_{\alpha}$ | $SD_{\alpha}$ | $\alpha_{MIN}$ | $\alpha_{MAX}$ |
|---|---|---|---|---|---|
| $WAI_{OVERALL}$ | 65 | .92 | .044 | .76 | .98 |
| $WAI_{GOALS}$ | 58 | .83 | .113 | .27 | .95 |
| $WAI_{TASKS}$ | 58 | .86 | .765 | .52 | .96 |
| $WAI_{BONDS}$ | 58 | .81 | .099 | .52 | .97 |

*Notes.* $WAI_{OVERALL}$ N – overall score, $WAI_{GOALS}$ – Goal, $WAI_{TASKS}$ – Setting tasks subscale, $WAIT_{BONDS}$ – Bond development subscale, *n* – number of reliability analyses included in the summary for a certain WAI dimension, $M_{\alpha}$ – Cronbach's α mean value, $SD_{\alpha}$ – standard deviation, $\alpha_{MIN}$ – minimum α Cronbach's value, $\alpha_{MAX}$ – Cronbach's α minimum value

* own calculations are presented, carried out using results from overseas WAI validation studies reported by the Paap's Team (2022)

Summing up the current findings on the reliability of WAI measurement by comparing it to previous analyses conducted in this regard, it should be emphasized that the Polish version of the WAI achieves similar, and usually higher, internal consistency values (α Cronbach's) when compared to the reliability values estimated for the WAI in foreign validations presented for the tool.

## Discussion and Conclusion

The main purpose of the paper was to present the questionnaire for measuring the quality of the psychotherapeutic relationship in the pantheoretical (equivalent term: transtheoretical – Cierpiałkowska, 2018) "Working Alliance Inventory" (Horvath & Greenberg, 1989) and its psychometric parameters to the Polish reader, especially to practicing psychologists dealing with psychotherapy both in their clinical work and in research.

Analysis of the reliability of three of the four versions of the questionnaire (WAI-PC, WAI-PT, WAI-SUM) showed that the measurement made by the WAI can be considered reliable. In the context of the foreign literature, the measurement reliability of the Polish adaptation of the WAI questionnaire, given that only a few measurements were taken with the tool, was estimated with varying statistics (Prusiński, 2021a). Abroad, reliability studies are usually based on Cronbach's internal consistency test statistics (Paap et al., 2022), and sample sizes in some published studies are small and do not exceed a few dozen subjects (Andrade-González & Fernández-Liria, 2015). Many times, too, measurement reliability is estimated only at the level of the total score (Hsu, Zhou, & Yu, 2016; Warlick, Richter, Catley, Gajewski, Martin, & Mussulman, 2019). Foreign literature, in turn, also presents analyses of measurement stability, which previous Polish studies have not included (Santirso, Martín-Fernández, Lila, Gracia, & Terreros, 2018).

Evidence is presented verifying the structure of Working Alliance Inventory. The results were unambiguous. Confirmatory factor analysis confirmed the three-factor structure of the psychotherapeutic alliance (Prusiński, 2020; Prusiński, 2021a). The WAI questionnaire showed satisfactory theoretical validity. The non-random change method confirmed the main factor analyses for the WAI-PC version (Prusiński, 2021b).

Importantly enough, it is key to relate the results and conclusions presented above to previous factor validity analyses carried out abroad. WAI factor analyses have been carried out to date in 51 studies on different versions of the WAI, of which 47 were confirmatory plan analyses, 21 were exploratory factor analyses, and 3 were Rasch method analyses (Paap et al., 2022). The methodological quality of not all analyses proved sufficient. This was mainly due to small sample sizes (Gülüm, Sait, & Soygüt, 2018; Miloff, Carlbring, Hamilton, Andersson, Reuterskiöld, & Lindner, 2020) or lack of information on the methods used to assess structural validity (Hunik, Galvin, Hartman, Rieger, Lucassen, Douglas, & Sturgiss, 2021). The results of 22 studies showed a structure of three alliance factors. Sixteen studies have reported on the structure of two factors, typically: agreed goals and designated bonds (Gómez Penedo, 2020; Knowles, 2020). Performing the CFA analysis, however, it turned out that the fit measures of the three-factor model were also highly variable and rarely obtained high values simultaneously in all groups of indices considered. Often acceptable values of indices based on model fit function analysis (CFI < .93; .98 >; TLI < .90; .97 >) were accompanied by unacceptable values of the root mean square of the approximation error (RMSEA < .09; .56 >) (Gülüm et al., 2018; Hukkelberg & Ogden, 2016; Killian,

Forrester, Westlake, & Antonopoulou, 2017; Warlick et al., 2019).The fit indices in Polish factor validity analyses show the opposite trend in the values obtained. The RMSEA index generated good values.

The validity analyses reported for the Polish version of the questionnaire allow us to conclude that the Polish adaptation is equivalent to the original WAI (Horvath & Greenberg, 1989). The WAI questionnaire in its 36-item version is a consistent tool that can be successfully used in research.

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## Appendix No. 1

The tools can be used for scientific research.

### WAI-PC

Client Form (Patient)
Original version: Horvath & Greenberg (1989)
Polish adaptation: Prusiński (2019)

### Instructions

The statements below describe in different ways what a person may think or feel about his therapist. As you read the statements, fill in the blank in your head …… **with the name of your therapist.**

In the middle of each sentence below there is a seven-point scale:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Never | Rarely | Occasionally | Sometimes | Frequently | Very frequently | Always |

If a sentence describes the way you **always** feel (or think), circle digit 7. If a certain sentence never applies to you circle digit 1. Circle the remaining numbers to describe experiences that fall between the extremes.

This questionnaire is CONFIDENTIAL: only the research team will see your answers.

Respond quickly, the first impression is key to us, and we are keen to learn what it is. Circle only one answer for each statement and make sure you have not overlooked any of them.

Thank you for your time.

### Items

1. I felt uncomfortable with …
2. … and I agreed about the things I will need to do in therapy to help improve my situation.
3. I was worried about the outcome of the sessions.
4. What I was doing in therapy gave me new ways of looking at my problem.
5. … and I understood each other.
6. … perceived accurately what my goals were.
7. I find what I was doing in therapy confusing.
8. I believe … liked me.
9. I wish … and I could have clarified the purpose of our sessions.

10. I disagreed with … about what I ought to get out of therapy.
11. I believe the time … and I were spending together was not spent efficiently.
12. … did not understand what I was trying to accomplish in therapy.
13. I was clear on what my responsibilities were in therapy.
14. The goals of the sessions were important for me.
15. I find what … and I were doing in therapy was unrelated to my concerns.
16. I feel that the things I did in therapy helped me to accomplish the changes that I wanted.
17. I believe … was genuinely concerned for my welfare.
18. I was clear as to what … wanted me to do in those sessions.
19. … and I respected each other.
20. I feel that … was not totally honest about his/her feelings toward me.
21. I was confident in … 's ability to help me.
22. … and I were working towards mutually agreed upon goals.
23. I feel that … appreciated me.
24. We agreed on what was important for me to work on.
25. As a result of the therapy I became clearer as to how I might be able to change.
26. … and I trusted one another.
27. … and I had different ideas on what my problems were.
28. My relationship with … was very important to me.
29. I had the feeling that if I said or did the wrong things, … would stop working with me.
30. … and I collaborated on setting goals for my therapy.
31. I was frustrated by the things I was doing in therapy.
32. We had a good understanding of the kind of changes that would be good for me.
33. The things that … was asking me to do did not make sense.
34. I did not know what to expect as the result of my therapy.
35. I believe the way we were working with my problem was correct.
36. I feel … cared about me even when I did things that he/she did not approve of.

## Appendix No. 2

### WAI-PT

Psychotherapist Form
Original version: Horvath & Greenberg (1989)
Polish adaptation: Prusiński (2019)

### Instructions

The statements below describe in different ways what a person may think or feel about their client (patient). As you read the statements, fill in the blank in your head …… **with the name of your client (patient).**

In the middle of each sentence below there is a seven-point scale:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Never | Rarely | Occasionally | Sometimes | Frequently | Very frequently | Always |

If a sentence describes the way you **always** feel (or think), circle digit 7. If a particular sentence never applies to you, circle digit 1. Circle the remaining numbers to describe experiences that fall between the extremes.

This questionnaire is CONFIDENTIAL: only the research team will see your answers.

Respond quickly, the first impression is key to us, and we are keen to learn what it is. Circle only one answer for each statement and make sure you have not overlooked any of them.

Thank you for your time.

## Items

1. I feel uncomfortable with … .
2. … and I agree about the steps to be taken to improve his/her situation.
3. I have some concerns about the outcome of these sessions.
4. My client and I both feel confident about the usefullness of our current activity in therapy.
5. I feel I really understand … .
6. … and I have a common perception of her/his goals.
7. … finds what we are doing in therapy confusing.
8. I believe … likes me.
9. I sense a need to clarify the purpose of our session(s) for … .
10. I have some disagreements with … about the goals of these sessions.
11. I believe the time … and I are spending together is not spent efficiently.
12. I have doubts about what we are trying to accomplish in therapy.
13. I am clear and explicit about what …'s responsibilities are in therapy.
14. The current goals of these sessions are important for … .
15. I find what … and I are doing in therapy is unrelated to her/his current concerns.
16. I feel confident that the things we do in therapy will help … to accomplish the changes that he/she desires.
17. I am genuinely concerned for …'s welfare.
18. I am clear as to what I expect … to do in these sessions.
19. … and I respect each other.
20. I feel that I am not totally honest about my feelings toward … .
21. I am confident in my ability to help … .
22. We are working towards mutually agreed upon goals.
23. I appreciate … as a person.
24. We agree on what is important for … to work on.

25. As a result of these sessions … is clearer as to how she/he might be able to change.
26. … and I have built a mutual trust.
27. … and I have different ideas on what his/her real problems are.
28. Our relationship is important to …
29. … has some fears that if she/he says or does the wrong things, I will stop working with him/her.
30. … and I have collaborated in setting goals for these session(s).
31. … is frustrated by what I am asking her/him to do in therapy.
32. We have established a good understanding between us of the kind of changes that would be good for … .
33. The things that we are doing in therapy don't make much sense to … .
34. … doesn't know what to expect as the result of therapy.
35. … believes the way we are working with her/his problem is correct.
36. I respect … even when he/she does things that I do not approve of.

## Key for score calculation
(for all WAI versions)

Goal arrangement: 3R, 6, 9R, 10R, 12R, 14, 22, 25, 27R, 30, 32, 34R

Agreement on tasks: 2, 4, 7R, 11R, 13, 15R, 16, 18, 24, 31R, 33R, 35

Bond development: 1R, 5, 8, 17, 19, 20R, 21, 23, 26, 28, 29R, 36

R – reversed scale