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Manual for the Work Rewards Scale - Paediatric Oncology (WRS-PO)

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1. Introduction

This manual is for researchers and clinicians interested in using the Work Rewards Scale - Paediatric Oncology (WRS-PO) for research or clinical practice. It describes the purpose of the WRS-PO, the background to the scale, how it was developed, administration and scoring of the measure, and its psychometric evaluation. The WRS-PO is freely available for non-commercial purposes. In order to use the WRS-PO you are required to complete a registration form and agree to the terms and conditions of use. This registration form is available from the SPRU website (http://php.york.ac.uk/inst/spru/research/summs/LIPOP.php). Once this form is returned to the WRS-PO Administrative Manager, you will be sent a downloadable copy of the WRS-PO, along with the Scale Score Guidance Notes.

2. The Purpose of the WRS-PO

The WRS-PO is a 35-item psychometric scale which provides an overall score of the perceived intensity of the non-financial work-related rewards experienced by staff working in multi-disciplinary paediatric oncology teams during the past 6 months. The WRS-PO was developed for use with doctors, nurses, and non-clinical staff (social workers, play specialists and youth workers) in the UK. It can therefore be used to provide an overview of how rewarding work is for these members of multi-disciplinary teams and to compare the experiences of these different staff groups. The WRS-PO has *not* yet been validated for use with other members of the paediatric oncology team (for example, ancillary staff, radiologists, surgeons, and so on) or for paediatric oncology staff working in other settings (for example, shared care). It should, therefore, not be administered to these groups. Furthermore, it had not yet been adapted for use by paediatric oncology staff in other countries. Anyone wishing to adapt the measure for use with other staff groups/in others settings must seek permission from the measure developers and comply with guidance on how to go about the adaptation.

It is anticipated that the Perceived Intensity scale of the WRS-PO will be used in research investigating the relationship between work-related rewards and both positive (i.e. engagement; emotional well-being) and negative (i.e. burnout, sickness absence, etc.) outcomes for staff. It may also be used as an outcome measure in studies evaluating the effectiveness of staff support interventions. In addition to using the scale score, responses to the individual items within WRS-PO can be examined to identify which situations and events staff find most/least rewarding. Such information may be particularly useful to those wishing to develop interventions to support staff.

3. Background to the Scale

The WRS-PO was developed as a result of a research project aimed at constructing a measure of the work-related stressors experienced by paediatric oncology staff (For further details please refer to http://php.york.ac.uk/inst/spru/research/summs/LIPOP.php). During the early stages of this project, it was decided that in addition to creating a measure of work-related stressors, the team should also create a measure of work-related rewards. There were a number of reasons for this decision. First, paediatric oncology staff consulted about the research on work-related stressors pointed out that there are both positive and negative aspects to the job, and that it is important that any research on the topic describes both aspects so as not to present an overly negative picture of what it is like to work in paediatric oncology services. Second, the creation of a rewards measure is likely to add to researchers' ability to investigate and understand the reasons why some staff experience burnout and/or mental health difficulties, while others do not. Two national surveys of UK consultants from a range of *adult* specialities, including oncology, found that although burnout and poor mental health were related to high levels of job stress, high levels of job satisfaction could protect individuals from the effects of job stress[1, 2]. Such information is important for the future development of interventions aimed at preventing burnout and mental health difficulties in staff since it suggests that, even if it is not possible to intervene to eliminate some of the stressors experienced by staff, intervening to increase job satisfaction may in itself result in an effective intervention. Finally, in terms of the ethics of research into work-related stressors, there are advantages to asking staff about both sources of stress and sources of satisfaction/rewards. Doing so means staff are not focussing solely on the difficulties they experience in the job and therefore are less likely to be concerned about their work or well-being as a result of participating in such research. A review of the literature undertaken prior to creating the WRS-PO failed to identify a paediatric oncology specific measure of work-related sources of satisfaction/rewards which could be administered to both clinical and non-clinical members of the paediatric oncology team. The research team therefore decided to develop a new measure that could be administered across the paediatric oncology team.

4. The Development of the Scale

The WRS-PO was developed in line with recent recommendations regarding the development of subject-reported measures[3] and using modern psychometric techniques. Stages in the development process included (1) qualitative interviews with a purposive sample of paediatric oncology staff (n=32) about their work-related rewards, drawn from two Principal Treatment Centres (PTCs) in England and through a children's cancer charity which funds non-clinical posts; (2) analysis of interview data to generate the item pool for the draft measure; (3) cognitive interviews (n=9) to gather feedback on the draft measure, including content of items and response options; (4) a field test survey of the draft and comparator measures involving 203 paediatric oncology staff (115 nurses, 47 non-clinical members of staff, 40 doctors) drawn

from seven PTCs and a children's cancer charity; (5) factor and Rasch analysis of the survey data to test the scaling properties of the measures and decide on the final item set; (6) preliminary assessment of the construct validity of the measure.

As a result of this development process, the WRS-PO is based on the real life experiences and perceptions of paediatric oncology staff. During the course of the qualitative interviews (stage1), staff were given the opportunity to describe *any* of the rewards or sources of job satisfaction associated with working in paediatric oncology. When the data was analysed, it fell it a number of thematic categories, none of which were concerned with the financial rewards of the job or terms and conditions of employment. Once an item pool for the draft measure had been developed, cognitive testing was used to determine whether staff preferred to be asked about how 'rewarding' or how 'satisfying' a particular situation or event had been for them during the past 6 months. Staff had a clear preference for the term 'rewarding'. In order to stay true to the experiences and perceptions of staff, and construct a measure which is easy for staff to complete, it follows that the final instrument is a measure of the *non-financial* rewards of the job.

Further details on the development of the measure are available from a research paper on the project [(4)].

5. Administration of the Measure

The WRS-PO is a 35-item paper and pencil questionnaire which is self-administered and takes approximately 10 minutes to complete. Given that the measure deals with potentially sensitive issues, respondents must complete it in private and be assured that the information provided will be treated as strictly confidential. In order to maintain confidentiality, respondents should not be required to put their name or any other identifying information on the questionnaire. Instead, unique identifiers which are not personally revealing, such as code numbers, should be used.

6. Scoring the WRS-PO

The WRS-PO provides a sum score of the extent to which to staff perceive their work to be rewarding. In order to calculate this score, administrators should sum responses to the Perceived Intensity response option ('How rewarding has this been for you?'). Scores on the Frequency of Exposure response option should **not** be used ('How often have you encountered this situation?'). Guidance on how to use the Frequency of Exposure data is given in Section 7.

Each item in the Perceived Intensity scale of the WRS-PO is scored from 0-2 (How rewarding has this been for you?: not at all=0; a little=1; a lot=2.). It follows that the total score ranges from 0-

70, with a higher score indicating that work is perceived as more rewarding. The raw WRS-PO total score provides ordinal level data. Before carrying out parametric analysis of the data, raw ordinal scores should be transformed to the interval scale. Further information on transformation to the interval scale is provided in the WRS-PO Scale Scoring Guidance Notes.

7. Guidance on Use of the Frequency Response Option

Cognitive testing revealed that respondents found it easier to report on how rewarding they found a situation or event after they had reflected on how frequently they encountered it. It was therefore decided that each item should have two responses formats: (1) How often have you encountered this situation? (2) How rewarding has this been for you? *Only data regarding the perceived intensity of rewards (response option 2) should be collated to form a scale score*. There are two reasons for this. First, a sum score of exposure to potentially, but not necessarily, rewarding situations is not thought to provide meaningful data. Second, the WRS-PO has been created on the basis of a Rasch analysis of the Perceived Intensity data. A Rasch analysis has **not** been performed on the Frequency of Exposure data and we therefore have no evidence that this data meets the requirements of conjoint measurement and can be summed together to form an interval level scale score.

Although the Frequency of Exposure data should not be summed together, it may be useful in clinical practice when making decisions as to how best to support staff. In these circumstances, we recommend that managers examine the WRS-PO data to determine which items are reported to be most rewarding for staff (rank order according to percent reporting item to be 'a lot' rewarding), and then examine the frequency with which staff report encountering the top 10 most rewarding items. This data can be used to make a more informed decision as which rewards to tackle in an intervention.

8. Psychometric Properties of the Measure

This section deals with the content validity of the measure, its scaling properties, construct validity and test-retest reliability.

Content Validity

In line with recent recommendations on the development of subject-reported measures[3], the items included in the measure are based on verbatim text extracted from qualitative interviews with paediatric oncology staff. Furthermore, cognitive interviews with paediatric oncology staff revealed that the items 'resonated' with them, reminding them of situations they had encountered at work and, as a result, completing the measure was appealing. In summary, the

WRS-PO is grounded in the real-life experiences of paediatric oncology staff and has considerable content validity.

The Scaling Properties of the WRS-PO

The scaling properties of the measure were tested using Rasch analysis. Rasch analysis is the formal testing of a scale against a mathematical measurement model developed by the Danish mathematician Georg Rasch[5]. The approach is now widely used both to construct new scales and review existing scales. It has been endorsed as a rigorous approach to measure development[6-8] because it looks beyond the overall functioning of the test (as is the case is classical response theory), to examine the response of an individual with a given ability/underlying trait to each item in the measure. The Rasch model (ideal) assumes that the probability of a given respondent affirming an item is a logistic function of the relative distance between the item location (that is, in the case of a rewards measure, the level of reward expressed by the item) and the respondent location on a linear scale (that is, the extent to which the person perceives work to be rewarding). If the data fit the model, we have evidence of an interval level scale, and the Rasch analysis provides a transformation of the raw ordinal scores to the interval-level variable. Detailed guidelines on Rasch analysis are available[8, 9].

The stages of the Rasch analysis were as follows:

i. Exploratory factor analysis to provide an initial idea of likely dimensionality (the item-case ratio was insufficient for a substantive factor analysis).

ii. Factor analysis output used to identify an item set or, if multidimensional, item sets to take forward to the Rasch analysis.

iii. For each item set: Rasch analysis was used to test the validity and reliability of the item set and, based on outputs of analyses, revision of these item sets so as to yield item sets with psychometrically acceptable scaling properties.

iv. Testing whether a total score can be obtained.

A full report on the findings of the Rasch analysis is provided in a research paper describing the measure development [4].

Construct Validity

When testing the construct validity of a scale which is capturing a previously unmeasured construct, comparator measures are typically chosen with which some, but not very strong, associations would be expected[3]. Two comparator measures were used here - the Maslach Burnout Inventory – Human Services Survey (MBI-HSS)[12]; and the Health and Safety Executive's Management Standards Indicator Tool (HSE MS Indicator Tool)[13]. In line with expectations, moderate correlations were found between the WRS-PO and these comparator

measures. A full report on the findings of this evaluation is available from the research paper describing the development of the measure [4].

Test-Retest Reliability

The final stage in the measure development process is to test the stability of the measure over time. Sites which had participated in Stage 1 of the study (qualitative interviews about work-related rewards) participated in this stage of the project. Recruitment packs consisting of a letter of invitation, the WRS-PO, and a staff support information leaflet were distributed on behalf of the research team. Following receipt of a completed questionnaire (Time 1), a second copy of the questionnaire was administered four weeks later (Time 2). This was posted directly to the member of staff by the research team. The response rate at Time 1 was 56 per cent (n=54). However, at Time 2, just 16 questionnaires were returned (30 per cent response rate). This was an inadequate sample size to measure test-retest reliability. Further research to assess the test-reliability of the measure will be undertaken as soon as possible.

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