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Validation of a Questionnaire Measuring the Psychological Risks and Harms Faced by Working Children Based on the Multidimensional Item Response Model

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Objective: The researchers aimed to design and validate a questionnaire to assess the most critical psychological risks and harms faced by working children.

Methods and Materials: To identify the psychological risks and harms faced by working children, the researchers systematically reviewed existing studies and literature in this field. Based on the most important findings, they designed the questions. After the design, content validity was confirmed through expert opinions using the Lawshe's content validity ratio. The developed questions (63 items) were preliminarily administered to a sample from the target population, i.e., working children and their guardians, and after an initial analysis, the data of 2161 working children were entered into the analysis stage. This sample was selected through cluster sampling; however, in the final stage of cluster sampling, children and their guardians voluntarily participated in the study. The multidimensional item response theory was employed as a statistically reliable technique with the aim of dimensionality detection and determining the precision of each dimension's measurement, and ordered theta was used to assess the reliability of the dimensions.

Findings: Two underlying dimensions were discovered, which were named based on the relationship and alignment of the questions with each dimension as: a) the psychosocial well-being dimension and b) the behavioral regulation dimension.

Conclusion: Accordingly, the psychological risks and harms faced by working children include psychosocial harms and an inability to exhibit appropriate behavior (behavioral regulation) in various situations. Previous research also confirms the presence of such harms in working children.

Keywords: *psychological risks and harms, working children, validation, multidimensional item response model, questionnaire construction.*

1. Introduction

Both the work environment and the nature of the work have significant impacts on health (Punch, 2009). However, the effect of occupational hazards on the health of adult and child workers differs substantially. Due to physiological and psychological immaturity, biological growth processes, and the greater vulnerability of children, they are exposed to a higher risk of health hazards and work-related psychological injuries (Quick et al., 2014). Although working can have positive psychological effects on children, such as fostering discipline, increasing responsibility, boosting self-confidence, and promoting a sense of independence, as well as helping them improve work skills (Punch, 2009), it can also have significant negative impacts on their physical and psychological health and development (World Health Organization, 2020).

What determines whether child labor promotes growth or impairs health is the type and nature of the work, as well as the work and family environments of the child (Jayawardana et al., 2023). According to UNICEF statistics, as cited by the International Labour Organization (ILO) and mentioned on their official website, as of June 2021, there were 160 million child laborers globally, with an increase of 8.4 million over the past four years. However, it should be noted that the type of work children perform determines whether or not it is harmful to them. The complexity of child labor makes it challenging to distinguish between harmful and non-harmful work (Punch, 2009). The term "child labor" refers to a subset of children's work that is harmful and must be eliminated. Additionally, there is a form of child labor that is intolerable and constitutes a severe violation of children's rights, which must be prioritized for immediate action (Cox et al., 2000).

Thus, not every child who works is considered at risk as a child laborer. Instead, "child labor" as defined by the ILO refers to work that children engage in which exposes them to potential or actual physical and psychological risks and injuries (ILO, 2004). UNICEF defines child labor as "work that exceeds the minimum number of hours depending on the child's age and the type of work." Since there is no universally agreed-upon definition of child labor, there is consequently no universally agreed definition of "working child" either. International studies on child labor generally define it as children who are part of the economically active population, which is considered harmful to the child and must be eradicated (Singh & Modi, 2023).

On the other hand, health, in both its mental and physical dimensions, plays a central role in the definition of international law. Since the 1950s, the psychological aspects of work have increasingly been a subject of research (Johnson & Hall, 1996; Sauter et al., 1998). The factors influencing children's psychosocial development were first discussed by the WHO's Expert Committee in 1976. Both the work environment and the intrinsic nature of working are significant variables impacting mental health. However, the immaturity of children's psychological and biological growth processes greatly increases their vulnerability, placing them at high risk of work-related health problems (Forastieri, 2002; O'Donnell et al., 2008; O'Donnell et al., 2002).

The results of various legal, psychological, sociological, and anthropological studies on working children and child labor can be divided into two categories: child labor is not inherently harmful, and if it does not result in physical or psychological harm, it can have positive outcomes for both the children and society. This category includes a small number of working children. The larger category of child labor encompasses work that causes physical or psychological harm to the child, which not only fails to contribute to their growth but also results in numerous physical and psychological injuries, exposing them to irreversible dangers (Abdalla et al., 2019; Forastieri, 2002; Jenabi et al., 2021; Kifle et al., 2005; O'Donnell et al., 2002; Santana & Ristum, 2023; Woodhead, 2004; Woolf, 2002; Wulansari et al., 2023). Therefore, the importance of developing a tool that can assist in identifying the physical and psychological risks and injuries faced by working children becomes all the more crucial. Developing indicators that improve the lives of working children, especially those aligned with children's developmental stages, is a challenging approach. A balance must be struck between the needs of working children and the practicality of the tool. The first step in designing and revising indicators is identifying the end users and their goals. Potential users of indicators related to child labor are diverse and include international agencies such as the ILO, WHO, and UNICEF, national governments and their ministries, regional and local authorities, professional agencies and public institutions, research organizations, non-governmental organizations (NGOs), and ultimately, the most important users, the public themselves. Each of these users may utilize the indicators in different ways. Some may use them to help formulate and assess policies on a relatively large scale (e.g., national level), while others may need these indicators to assist in the development of local strategies. Some users may employ the indicators to monitor the impact of existing measures, while

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others may rely on them to identify gaps requiring urgent attention. International or national-level users are primarily focused on policy formulation and monitoring. Governments and international agencies are generally interested in the bigger picture and broader trends in the field of child labor. Ministries and government officials require indicators that are quantitative and replicable.

Given that the goal of this research is to develop a tool related to the psychological risks and harms faced by working children, a review of tools in the field of child labor risks and harms is presented. Therefore, the aim of reviewing the literature at this stage is to provide a list of indicators that can help assess the global and national status of child labor to assist in prioritizing policies, and in monitoring and evaluating the effectiveness of national and international programs to address it, with a public health approach.

2. Methods and Materials

2.1. Study Design and Participants

In terms of its objective, this research is considered an applied study. Since the questionnaire item analysis process is based on the multidimensional item response theory (IRT), the study can be classified as part of correlational research. On the other hand, the nature of the current study is psychometric research, which is a distinct branch within the various research methods. In this study, two different populations are present: a) the first population consists of all research that addresses the topic of the psychological harms faced by working children (with the goal of identifying these harms), and b) the tool obtained will be used in the population of Iranian working children.

a) Sampling from the literature and research background aims to extract important variables containing information that was collected via the internet. The researchers attempted to consider all online materials directly related to the research topic as part of their sample. In other words, instead of sampling, a census was conducted at this stage. Additionally, the researchers aimed to include literature and research backgrounds that, while not directly addressing the topic, were closely related. Some of the keywords used in searching for research sources included: labor child, labor children, psychological risks, psychological injuries, work harm, etc. The websites used for resource searches included: scholar.google, ERIC, DOAJ, Scopus, Web of Science, PubMed, ISI, etc. In total, 124 articles were entered into the final analysis stage.

b) Sampling of working children: The research population in this section includes all working children (ages 4 to 17) in the country. Since the research population includes all working children in the country, sampling in both stages of the study was based on non-random cluster sampling. Cluster sampling was used because the working children from various provinces of the country were involved. Additionally, since it was not possible to access all working children, the study was conducted only with volunteer children available for the study, hence the non-random (purposive: voluntary) sampling. General information about working children was available from NGOs related to working children, which was used for general guidance in data collection. In the first stage of cluster sampling, all provinces of the country were included. In other words, in the first phase, samples were taken from all provinces of the country. However, in the second phase, the focus was on the working children of provincial centers. The researcher attempts to select as large a sample as possible. Since the most crucial part of the data analysis in this study is item analysis based on multidimensional IRT, the minimum sample size can be determined based on the number of items. Methodological studies in this field mention the minimum required data in various ways, with no overall consensus. However, most research considers a minimum sample size of 500 for performing item analysis of ordinal scale questionnaires, such as those with a Likert scale, based on multidimensional IRT (Hiland & Croker, 1995). Nevertheless, the researcher in this stage of the study selected 2161 working children. The large sample size ensures the reliability of the results.

2.2. Data Collection

The primary aim of this study is to develop a tool to assess the psychological risks and harms faced by working children. After identifying the main variables related to the psychological risks and harms of working children, questionnaires covering these identified variables were selected with the goal of creating items and using the questions from those questionnaires. These are: 1) Child Abuse Self-Report Scale, 2) Child and Adolescent Resilience Measure, 3) Strengths and Difficulties Questionnaire, 4) Parenting Stress Scale, 5) Family Support Scale, 6) Reaction to Diagnosis Scale, 7) Child Personality Traits, 8) Emotion Regulation Checklist, 9) Problematic Behavioral Control, Inhibitory Control, and Cognitive Flexibility Inventory, and 10) demographic variables. All

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these tools have been used in previous research on children and adolescents (ages 4 to 17), and many of them have been standardized and used in the context of assessing psychological risks in Iran. However, since this study only used items from these tools in constructing the psychological risk assessment instrument, their psychometric properties were not considered.

2.3. Procedure

The research procedure is outlined below:

A systematic review of the available literature on the research keywords following the APA standards for thesis writing. Mendeley software was used for note-taking and reference management. In this stage, all available sources found online in Persian and English directly related to the current research topic were reviewed. The aim of this section was not only to organize the literature review but also to select the relevant variables for psychological risks and harms faced by working children.

Designing the questions and data collection: To design the questionnaire items, the researchers utilized questions from other questionnaires related to the identified variables. In some cases, the questions were modified, and the content was adapted to Iranian culture. To collect data, the prepared test was administered to a group of working children in both paper-pencil and electronic formats.

Table 1 lists the scales that assess the psychological risks and harms identified in this study and that the researcher used to design the questionnaire items.

Table 1

Variables Related to the Psychological Risks and Harms of Working Children

Abbreviation	Subscale Name	No.	Scale Name
ps. (v1)	Psychological Abuse	1	Child Abuse Self-Report Scale
ngl (v2)	Neglect	2	
ph. (v3)	Physical Abuse	3	
sx. (v4)	Sexual Abuse	4	
prs. (v8)	Personal Skills	5	Child and Adolescent Resilience Measure
pr.s (v9)	Peer Support	6	
sc. (v10)	Social Skills	7	
ph. (v11)	Physical Care	8	
ps. (v12)	Psychological Care	9	
spr (v13)	Spiritual	10	
edc (v14)	Educational	11	
clt (v15)	Cultural	12	
prs (v16)	Social	13	Strengths and Difficulties Questionnaire
hyp (v17)	Hyperactivity	14	
emt (v18)	Emotional	15	
cnd (v19)	Conduct	16	
per (v20)	Peer	17	
PSS (v21)	Parental Stress Scale	18	Parental Stress, Family Support, and Reaction to Diagnosis
SDQ_EmS (v22)	Emotional Score	19	
SDQ_ExS (v23)	Externalizing Score	20	
SDQ_H (v24)	Hyperactivity Score	21	
SDQ_I (v25)	Internalizing Score	22	
SDQ_P (v26)	Peer Problems Score	23	
SDQ_C (v27)	Conduct Problems Score	24	
RDQ (v28)	Total Reaction to Diagnosis Score	25	
FSS (v29)	Family Support Scale	26	
E (v30)	Extraversion	27	Personality
C (v31)	Conscientiousness	28	
O (v32)	Openness to Experience	29	
A (v33)	Agreeableness	30	
N (v34)	Neuroticism	31	
In. (v35)	Inhibitory Control	32	Variables Related to Behavioral Problems
Cg. (v36)	Cognitive Flexibility	33	
Emtn.d (v37)	Emotion Detection	34	
Emtn.n (v38)	Emotion Understanding	35	
Emtn.r (v39)	Emotional Regulation	36	

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BP.P (v40)	Behavioral Problems (Parent Report)	37	
BP.A (v41)	Behavioral Problems (Child Report)	38	
Dpr (v42)	Depression	39	Extracted from Interview
scd (v43)	Suicide	40	
Sl. (v5)	Self-esteem	41	
v6	Family Income	42	Socioeconomic Status of the Family
v7	Parental Education	43	

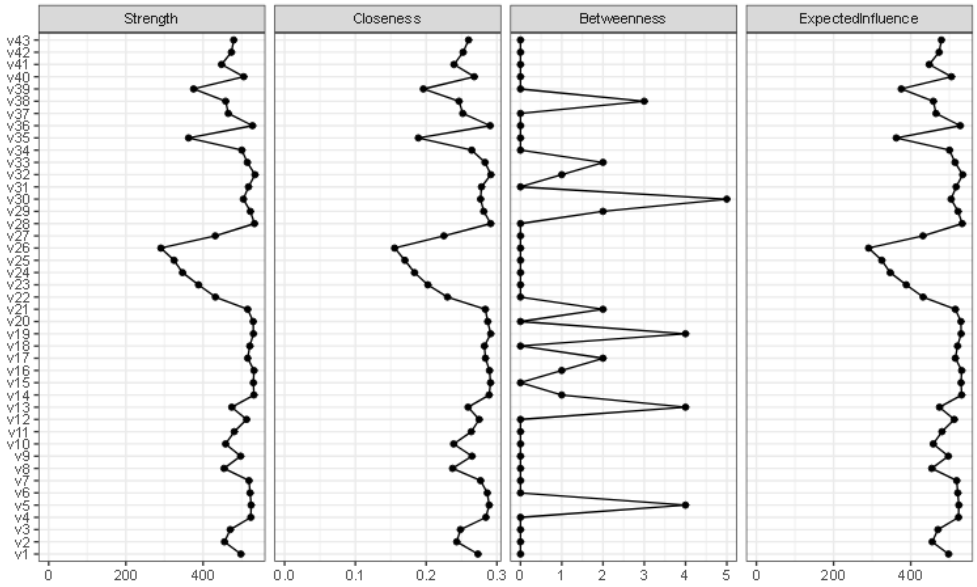
3. Findings and Results

In order to analyze the data, it is essential to clarify the status of the study variables. The number of psychological risks and harms (the primary variables of the study) identified in the literature and prior research (without repetition) amounted to 43 variables. Among these 43 variables, family income and parental education were two demographic variables, while the rest were related to the risks and harms faced by working children. The psychological risks and harms included: psychological abuse, neglect, physical abuse, sexual abuse, personal skills, peer support, social skills, physical care, psychological care, spiritual, educational, cultural, social, hyperactivity, emotional, conduct, peer problems, parental stress scale, emotional score, externalizing score, hyperactivity score, internalizing score, peer problems score, conduct problems score, total reaction to diagnosis score, family support scale, extraversion, conscientiousness, openness to experience, agreeableness, neuroticism, inhibitory control, cognitive flexibility, emotion detection, emotion understanding, emotional regulation, behavioral problems from the parent's perspective, behavioral problems from the child's perspective, depression, suicide, self-esteem, family income, and parental education. These variables were considered as psychological risks and harms of working children in this study.

Since it is impossible to measure all psychological risks and harms, we used the network modeling method to rank the psychological risks and harms of working children, and the result of this ranking is shown in the graph below, broken down by the network indices.

Figure 1

Comparison of Centrality Indices of Study Variables



The final significance value of each of the identified psychological risks and harms was obtained by summing the three values of betweenness, strength, and closeness. If we name this index "I," we have:

I=betweenness+strength+closeness

Based on the results, Variable 19 (Conduct Problems), Variable 5 (Self-Esteem), Variable 30 (Extraverted Personality Type), Variable 29 (Family Support), Variable

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32 (Openness to Experience Personality Type), Variable 17 (Hyperactivity), Variable 16 (Social Component of Strengths and Difficulties), Variable 21 (Parental Stress), Variable 14 (Educational Resilience Component), Variable 33 (Agreeableness Personality Type), and Variable 13 (Spiritual Resilience Component) were identified as the most significant 25% of variables in the network. Following these, other variables like Variable 28 (Reaction to Diagnosis), Variable 15 (Cultural Resilience Component), and Variable 36 (Cognitive Flexibility) ranked next.

Ultimately, 11 variables in the network of relationships related to the psychological risks and harms of working children in Iran were considered the primary variables for constructing the "Psychological Risks and Harms Assessment Tool for Working Children."

After identifying the 11 most significant risks and harms from all those identified, the researchers designed and extracted questions for them, with the analysis of these questions presented below.

To analyze the questionnaire based on the most significant psychological risks and harms faced by working children, the software packages ltm, psych, and mirt were used. These packages enable classical analyses (to assess the reliability and discriminative power of the questions) as well as analyses based on item response theory (IRT) (to determine item parameters under IRT) and factor analysis (based on multidimensional IRT). The primary goal of this study was to determine the number of underlying dimensions for the questions related to the main variables identified through network analysis.

Factor validity, a form of construct validity, was assessed through factor analysis. The most valid form of factor analysis currently available, which has the highest statistical validity, is the full-information nonlinear factor analysis, which can be accessed through multidimensional IRT (Kelly, Kumar, Smith, & Steers, 2023). Full-information nonlinear factor analysis is more appropriate and precise for test development in the humanities and behavioral sciences and aligns better with the nature of human-related topics. In other words, this method of factor analysis has higher statistical validity compared to traditional linear factor analysis. Current (traditional) linear factor analysis methods help in understanding the underlying concepts and different dimensions of questions and are valid and reliable, but they also have limitations that may prevent the discovery of the underlying dimensions in the data.

Here, the estimation of factor parameters was performed using Metropolis-Hastings methods, and factor rotation in all models (unidimensional, two-dimensional, etc.) was inclined. To assess the number of models, data were first fitted to the unidimensional, two-dimensional, and other models, and fit indices were obtained and compared. The results of this comparison are presented below.

Table 2

Model Fit Indices

Model	log.Lik	AIC	BIC
One parameter model	-110809.1	221803	222629
Two parameter model	-106842.7	214245	215721
Three parameter model	-106787.4	21395	215442

The log-likelihood, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC) for the three-parameter model were lower than for the other two models. However, it is necessary to examine the differences between these values using statistical tests, and if there is no significant difference between them, the simpler model is the better one. First, the one-parameter model is compared with the two-parameter model, followed by a comparison of the two-parameter model with the three-parameter model.

Table 3

Likelihood Ratio Test Comparison Between One- and Two-Parameter Models

Model	AIC	BIC	log.Lik	LRT	df	p.value
One parameter model	221803	222629	-110809			
Two parameter model	21395	215442	-106877	7937.9	63	<0.001

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The likelihood ratio test (LRT) value (7937.9) shows that the difference between the one-parameter and two-parameter models is statistically significant (p.value < 0.001). Since the indices for the two-parameter model are lower than for the one-parameter model, meaning the two-parameter model loses less information, this loss is statistically significant. Therefore, the two-parameter model fits the data better than the one-parameter model.

Next, the two-parameter model needs to be compared with the three-parameter model. The results of the likelihood ratio test between the two- and three-parameter models are shown in Table 4.

Table 4

Likelihood Ratio Test Comparison Between Two- and Three-Parameter Models

Model	AIC	BIC	log.Lik	LRT	df	p.value
Two parameter model	221803	215442	-106843			
Three parameter model	221324	215341	-105490	10234	63	<0.082

The significance value (sig < 0.082) shows that the difference between the information indices for the two- and three-parameter models is not statistically significant. Therefore, based on the principle of parsimony, two dimensions are considered the underlying dimensions for the questions across the 11 important variables. In other words, while the three-dimensional model has a lower AIC value, this difference is not statistically significant, and the two-dimensional model is preferred in such cases.

Table 5 shows the percentage of variance explained by each factor. The two dimensions discovered in this study explain over 66% of the total variance, which is a considerable and desirable amount.

Table 5

Factor Loadings and Percentage of Explained Variance (First 3 Dimensions)

Cumulative Variance %	Variance %	Eigenvalue	Dimension
36.53	36.53	0.28	Dim1
66.27	29.74	0.22	Dim2
72.21	9.94	0.1	Dim3

The questions related to openness to experience personality type, extraversion personality type, self-esteem, the educational resilience component, and the spiritual resilience component had higher loadings on one dimension, while questions related to agreeableness personality type, conduct problems, social difficulties, family support, parental stress, and hyperactivity formed the other dimension of the final questionnaire. It appears that the psychological risks and harms faced by working children are associated with these variables in various ways, although these variables can themselves be psychological harms resulting from child labor. Nevertheless, the results show that child labor alone is not necessarily a factor of harm or risk for children, but when combined with other variables, it leads to psychological problems.

The ordinal theta index was used to measure the reliability of the questionnaire's items.

Table 6

Reliability of the Questionnaire by Dimension

Number of Questions	Sample Size	Ordinal Theta	Dimension
25	2084	0.88	First
38	2084	0.85	Second

Information in item response theory (IRT) is equivalent to reliability in classical test theory. The graphs below display the information function for each dimension.

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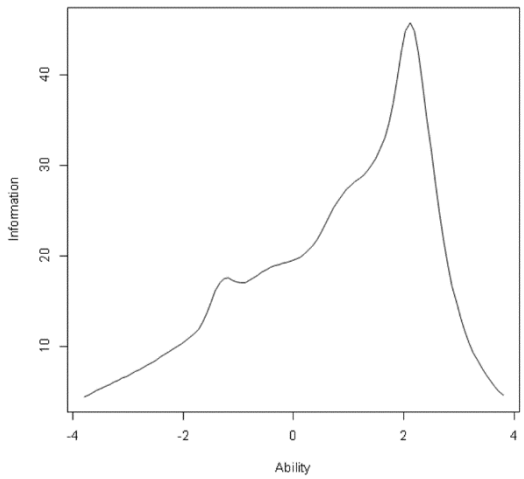
Figure 2

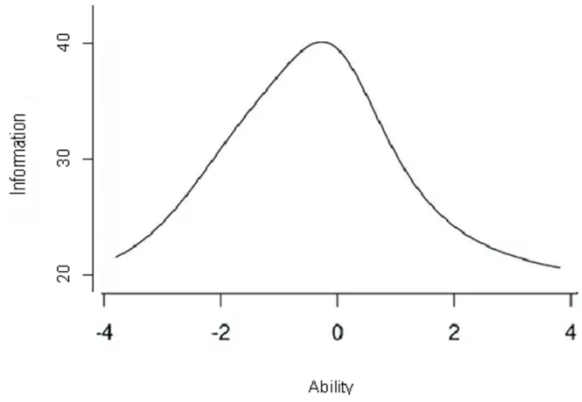
Information Function of the First Dimension



The information function from -2 to +3 is above 10, which is an acceptable level. Since over 99% of the population (working children) falls within this ability range, the assessment of psychological risks and harms in the first dimension is highly reliable based on the test information function. The most reliable measurement range for this dimension is around an ability level of +2.

Figure 3

Information Function of the Second Dimension



The assessment of the second dimension of psychological risks and harms has acceptable reliability across the entire continuum. In other words, across the ability range of -4 to +4, this dimension of the test provides a highly accurate measurement of the psychological risks and harms faced by working children. This dimension operates with very high precision (minimal error).

4. Discussion and Conclusion

As mentioned earlier, two meaningful and fundamental dimensions emerged in this study, based on 63 questions

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related to 11 primary psychological risks and harms of children. These 11 identified risks and harms led to the naming of the two dimensions based on their membership in the groups of questions. The first dimension, which explains about 37% of the total variance, is Psychosocial Well-Being. This dimension encompasses aspects related to the emotional and social well-being of working children, indicating how children interact with others and perceive their emotional state. The variables included in this dimension are self-esteem, family support, social component (from the Strengths and Difficulties Questionnaire), educational component (from the Child and Adolescent Resilience Measure), and spiritual component (from the Child and Adolescent Resilience Measure).

Self-esteem reflects a positive self-image and confidence in one's abilities. Sherman and Kiran (2017) studied self-esteem among working children, stating that due to early-life stress, working children suffer from various psychological issues. Family support refers to the level of emotional and practical support received from family members. The social component from the Strengths and Difficulties Questionnaire represents the empathy, kindness, and willingness to help others in children. The educational component from the Child and Adolescent Resilience Measure reflects the child's resilience when facing educational challenges. The spiritual component involves the sense of purpose, connection to something greater, and inner strength of working children.

The results of this study align with research that considers resilience as an essential factor in reducing the psychological harm children face. Rentschler (2013) emphasizes the importance of resilience in the quality of life, especially in children's lives. In the current study, resilience is not only a factor that reduces psychological risks and harms for working children but also is itself affected by child labor (Rentschler, 2013). Libório and Ungar (2010) mentioned that one of the most significant factors contributing to psychological harm to working children in resource-poor environments is the reduction of their resilience (Libório & Ungar, 2010). In our study, although the net effect of different variables formed the basis of the model, two subscales of resilience were considered important psychological harms resulting from child labor.

The second dimension, which explains about 30% of the total variance, was named Behavioral Regulation. This dimension focuses on behavior control and self-regulation in working children. The score of a working child in this dimension indicates how they manage their actions and impulses. The variables included in this dimension are conduct problems, hyperactivity, openness to experience personality type, and agreeableness personality type.

Conduct problems represent behavioral issues such as aggression, law-breaking, or defiance. Wulansari et al. (2023) considered child labor a complex issue often associated with conduct problems in children. Hyperactivity refers to excessive restlessness, impulsiveness, and difficulty in concentrating among working children (Wulansari et al., 2023).

The openness to experience personality type, although not directly related to working children's behavior, can influence how they adapt and regulate their actions. The agreeableness personality type reflects cooperative and considerate behavior in working children. It is evident that the discovered dimensions are not orthogonal (independent) from each other. Personality seems to be an integral part of psychological studies (Laylokhan, 2023). Although a large part of the psychological risks and harms experienced by working children depends on external factors such as social culture, social norms, family, and its supportive role, the personality of children also influences the intensity of these harms.

Based on the discovered and named dimensions, the two main psychological risks and harms facing working children are their Psychosocial Well-Being and Behavioral Regulation. Child labor is a global issue associated with inadequate educational opportunities, poverty, and gender inequality. Psychosocial well-being encompasses the emotional, social, and cognitive aspects of a child's life (Woodhead, 2004). The International Labour Organization (ILO) defines child labor as work that impairs physical and mental development. Moreover, many studies highlight the importance of positive self-esteem, social support, and emotional stability in overall child well-being (Abdalla et al., 2019).

The literature shows that child labor is associated with adverse health outcomes. These include poor physical growth due to malnutrition and hard labor, increased incidence of infectious diseases from exposure to unhygienic and hazardous environments, and specific system-related diseases affecting various bodily systems. Behavioral and emotional disorders such as stress, anxiety, and depression are also frequently observed among working children (Woolf, 2002). Moreover, child labor reduces children's ability to cope with stress and adversity. Most studies on the psychosocial well-being of working children are cross-

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sectional, limiting our understanding of long-term effects (Ambadekar et al., 1999).

Behavioral Regulation, as mentioned, refers to the child's ability to manage impulses, emotions, and actions. Effective regulation supports adaptive functioning and reduces the risk of behavioral problems. Working children face unique challenges in regulating their behavior due to work-related stress. Other studies on this dimension of children's behavioral issues show that child labor is associated with conduct problems like aggression and rule-breaking. These behavioral issues may persist into adulthood, affecting their social functioning. Research also shows that many working children exhibit hyperactivity (Abdalla et al., 2019), and child labor directly impacts their attention and concentration. This can hinder academic progress and social interactions, potentially leading to serious problems in their future (Woolf, 2002).

The openness to experience personality type in working children may cause difficulties in adapting to ever-changing work conditions. Furthermore, openness to experience is not a significant advantage for working children, as their support resources are minimal. On the other hand, child labor prevents their successful participation in collective activities. Working children who face harsh conditions may find it challenging to maintain desirable behavior, which relates to the agreeableness personality type in children (Ambadekar et al., 1999).

The final questionnaire developed from this research assesses both dimensions and identifies their interaction in the psychological well-being of working children. By assessing psychosocial well-being and behavioral regulation, we gain a comprehensive understanding of the impact of child labor. Policymakers and practitioners should consider these dimensions when designing interventions to reduce risks and enhance resilience. The validated questionnaire is a valuable tool for researchers, policymakers, and practitioners working with working children. By assessing risks and harms, we can develop interventions to address specific psychological needs. Future research should investigate the longitudinal validity and cross-cultural applicability of this tool.

5. Limitations & Suggestions

We faced several challenges in conducting this research, which we briefly highlight here. The first challenge was defining optimal mental health for working children. We needed to identify the most appropriate mental health indicators for child labor while also specifying the relevant psychological risks and harms. The term "psychological" here refers to both cognitive and socio-emotional aspects, considering social adaptation. In the context of child labor, we needed to distinguish between effects classified as "physical," "educational," and "psychological." Physical effects pertain to environmental hazards and physical health, while educational effects relate to school challenges. Initially, it seemed that psychological effects encompassed various aspects, including moral, social, and cognitive impacts.

Moreover, distinguishing between working children and employed children posed another challenge. Child labor generally involves coercion, separation from family, exposure to hazards, and even self-care on city streets or rural work at very young ages. Consequently, reviewing the existing literature directly guided us toward the primary goal of identifying the most critical psychological risks and harms associated with child labor. Therefore, we needed to categorize the types of harm caused by child labor based on the definition of optimal status found in the literature.

It is recommended that future researchers focus on the empirical definition of this concept. This can be achieved through the application of theories that lead to definitions based on empirical data. The use of the procedural theory approach is a suitable method for achieving this goal. Procedural theory is a quantitative theory that aids in definition, conceptualization, and theorizing. The tool for assessing the psychological risks and harms of working children can be improved based on a model-driven definition (such as procedural theory). Moreover, with the rapid changes occurring today, the questionnaire can be revised and improved using new data alongside artificial intelligence techniques.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for

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ethical research involving human participants (Ethics Code: IR.BPUMS.REC.1401.069).

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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