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Adaptation of the Teachers' Self-Efficacy Expectations Scale for Supporting Chronically Ill School-Age Pupils: A Turkish Version

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Abstract:
Introduction: Chronic illness is a long-term condition that can significantly affect pupils' school lives. Teachers regularly interact with chronically ill pupils, making strong self-efficacy expectations essential for effective educational support. Kohlwage (2025) developed a scale to measure teachers' self-efficacy in dealing with chronically ill pupils in German-speaking contexts. This study aims to translate this scale into Turkish and examine its validity and reliability.
Methods: The adaptation process included translation and back-translation procedures to ensure linguistic equivalence in Turkish. Construct validity was evaluated using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).
Results: The Turkish version of the scale demonstrated good construct validity and reliability. Both EFA and CFA confirmed the structural adequacy of the instrument, and Cronbach's α coefficients indicated high internal consistency.
Discussion: Findings suggest that the adapted scale can serve as a useful tool to evaluate teachers' self-efficacy expectations when supporting pupils with chronic illnesses in Turkish educational contexts.
Conclusions: The Turkish adaptation of the "Short scale on self-efficacy expectations of student teachers in dealing with chronically ill pupils" [Öğretmen Adaylarının Kronik Hastalığı Olan Öğrencilerle Başa Çıkma Sürecine Yönelik Özyeterlik Ölçeği- K-ÖZET], is a valid and reliable instrument that can be applied in further research and practice to assess and support teachers' competencies.

Key words: chronic illnesses, classroom teachers, self-efficacy expectations.

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Introduction

The number of chronically ill children and adolescents has been increasing for years due to improved diagnostic capabilities and changing environmental and social living conditions. For example, studies conducted by the Robert Koch Institute (2019; 2023) on the health status of children and adolescents aged 0 to 17 in Germany show that approximately 16% of this age group suffer from a long-term somatic chronic illness (e.g., asthma, diabetes), and one in five exhibit signs of a mental disorder (e.g., anxiety disorder).

While official prevalence data on chronic illness among children are currently not available for Turkey, the Turkish Statistical Institute (Turkish Statistical Institute [TÜİK], 2025) has published a recent report titled "Child Health and Deprivation, 2024." According to this report, 53.7% of children whose health was rated as "poor or very poor" experienced severe limitations in their daily activities due to a health problem that had persisted for at least six months. Although this figure does not provide a direct diagnosis rate, it highlights the substantial proportion of children in Turkey who face long-term health-related limitations that may affect their school participation and functioning.

As such, it is increasingly likely that teachers will encounter chronically ill pupils throughout their careers. This reality brings about additional health-related responsibilities within the teaching profession. The ability to accept and manage these responsibilities is closely tied to teachers' self-efficacy expectations (Greiner et al., 2020), which are also recognized as a core component of professional teacher behavior (Baumert & Kunter, 2011). However, for a long time, there was no appropriate instrument available to assess the self-efficacy expectations of (prospective) teachers in dealing with chronically ill pupils. To address this gap, a corresponding scale was recently developed and validated in German-speaking countries (Kohlwage, 2025). The present study aims to translate and adapt this instrument into Turkish, where such a tool is still lacking.

To this end, the concept of "chronic illness", on which this article is based, is first defined. Self-efficacy expectations are located as a central component of professional teacher action and the current state of research on (inclusion-related) self-efficacy expectations of teachers is presented. The translation of the scale and its validation are then presented. The results are discussed, and a conclusion is drawn.

1 Literature review

1.1 Definition and delimitation of chronic illnesses

The concept of "chronic illness" lacks a uniform definition. However, chronic illness definitions generally encompass two key criteria (Schmidt & Thyen, 2008):

1. The duration of the illness persists for at least 3-12 months (depending on the definition).
2. Chronic illnesses can be characterized by their severity, by factors such as activity limitations or the need for medical care.

Within this framework, a broad group of patients can be classified as chronically ill. Therefore, the term "chronic illness" should be defined for this study and specifically related to the school context. This definition is also based on the definition used in Kohlwage's (2025) scale:

A chronic illness is a physical or psychological condition that has persisted for at least one year, leading to limitations in daily life and/or requiring treatment. The severity and extent of the illness allow the pupil to attend regular schools when appropriate support and school accommodations are provided. Inappropriate attitudes and behaviors of teachers may exacerbate the pupil's health condition.

Examples include diabetes, epilepsy, anxiety disorders, depression, and similar conditions.

1.2 (Medical) care for chronically ill pupils by teachers

If medication must be administered during school hours and children are unable to do so themselves, teachers often assume this responsibility (DGUV, 2021). In Germany, there is no general duty for teachers to administer medication, but in emergencies (e.g. anaphylaxis), legal first-aid obligations apply (DGUV, 2021).

The legal framework for medical actions by teachers varies by federal state. In Hesse – where the German version of the scale was developed and validated – these are outlined in the decree of the Hessian Ministry of Education on "Guidelines for the implementation of medical assistance measures at schools" (HKM, 2015). It distinguishes between medical measures (which require professional training, e.g. the placement of feeding tubes) and medical assistance measures (which can be carried out by trained laypersons). The latter may be conducted by school staff if they consent, a prescription is provided, and a written agreement is in place (DGUV, 2021). This includes reminding and administering medication, administering tablets, suppositories, sprays, drops, subcutaneous injections, measuring blood sugar, using insulin pumps or pens, and monitoring bodily functions. Medical measures, in contrast, must be performed by healthcare professionals (e.g. mobile care services), who may also step in if teachers decline to assist (DGUV, 2021).

1.3 Self-efficacy expectations in teachers

Rooted in Bandura's (1997) social-cognitive theory, self-efficacy expectations can be defined as an individual's belief in their ability to successfully achieve a targeted goal and to plan and execute actions based on their capabilities. These

expectations are dynamic and can be learned or modified throughout life (Bandura, 1997). Self-efficacy expectations can be categorized as individual (beliefs about one's own abilities) or collective (assessments of a group's capabilities) (Schwarzer & Jerusalem, 2003). They also vary in specificity: beyond general self-efficacy expectations, Bandura (1997) refers to domain-specific expectations, such as teacher self-efficacy. This reflects teachers' or teacher candidates' beliefs in their ability to meet professional demands (Schwarzer & Schmitz, 2002). Self-efficacy expectations in working with pupils with chronic illnesses constitute a specific subset of teacher self-efficacy, encompassing the belief in possessing the skills necessary to ensure these pupils' full participation in school life, manage their illnesses, and plan and implement required actions.

1.4 Self-efficacy expectations as professional action competence

In models of teacher professional competence, individual characteristics necessary for successfully fulfilling professional duties are emphasized. In this context, one of the foundational models frequently referenced in inclusive education studies is Baumert and Kunter's (2011) COACTIV model. This model defines "action competence" as encompassing not only cognitive attributes but also motivational, metacognitive, and self-regulatory characteristics, which are learnable and adaptable. The COACTIV model identifies four components of teacher professional competence: knowledge, beliefs, motivation, and self-regulation. Self-efficacy expectations are a competence domain linked to motivational orientations and self-regulation. They are responsible for the psychological dynamics of action, the maintenance of intent, and the long-term monitoring and regulation of professional behaviors (Baumert & Kunter, 2011).

Thus, self-efficacy expectations constitute a central component of teachers' professional competence, a factor particularly significant in teacher education. These expectations can vary by domain and manifest at different levels (Korkut & Babaoğlan, 2012). Numerous scales have been developed to examine teachers' self-efficacy expectations across various aspects of their professional practice, including those specific to inclusive education. Here, the concept of "inclusion" is primarily addressed in the context of the "Inclusion Index" (Boban & Hinz, 2003; Buğday & Sarı, 2022), support measures, and the requirements of the UN Convention on the Rights of Persons with Disabilities (Turkish Ministry of Justice, 2025). This study adopts a broad definition of inclusion, with a focus on the heterogeneity introduced by chronic illnesses.

1.5 Current state of research

Given that self-efficacy expectations have been proven significant for teachers' professional behaviors and the realization of inclusion/participation goals in schools (Greiner et al., 2020), various scales have been developed to measure teachers' self-efficacy expectations in the context of inclusive education. Examples include the general self-efficacy scale by Schwarzer and Jerusalem (2003), the teacher self-efficacy scale by Schwarzer and Schmitz (2002), the TEIP scale (Teacher Efficacy for Inclusive Practices), which was translated into Turkish by Bayar (2015), or the KIESEL Scale by Bosse and Spörer (2014). However, there is no scale in Turkish that relates specifically to working with chronically ill pupils.

The literature on teachers' self-efficacy expectations in the context of inclusive education reveals inconsistent findings. For instance, Bosse et al. (2016) found positive self-efficacy expectations toward inclusive learning, whereas Gebhardt et al. (2015) reported contrary results. Generally, however, teachers - and particularly teacher candidates - tend to exhibit positive self-efficacy expectations toward inclusion (Bosse & Spörer, 2014). Studies indicate that pupils' self-efficacy expectations for inclusion are relatively high at the start of their training (Bosse & Spörer, 2014; Kopp, 2009; Schüle et al., 2017), increasing over time (Kopp, 2009) or following a U-shaped developmental pattern (Schüle et al., 2017). Self-efficacy expectations can also be positively influenced through interventions such as coursework or school experiences in teacher education (Greiner et al., 2020; Kopp, 2009).

In conclusion, teachers' self-efficacy expectations are critical to professional competence, both in the context of inclusion and in the education of pupils with chronic illnesses. Yet no valid scale in Turkish exists for this specific domain. This study aims to address this gap.

1.6 Purpose of the study

The primary purpose of this study is to adapt the "Short scale on self-efficacy expectations of student teachers in dealing with chronically ill pupils" [K-ÖZET], developed by Kohlwage (2025), into Turkish and to conduct analyses of its validity and reliability. Scale adaptation processes offer advantages over original scale development, such as resource efficiency (time and cost) and the ability to facilitate valid cross-cultural comparisons (International Test Commission, 2017; Marsh et al., 2019). According to ITC (2017) guidelines, a well-planned adaptation process can reduce scale development costs by up to 50%. This constitutes the rationale for the study. The adapted scale is intended to provide a valid and reliable tool for assessing the self-efficacy perceptions of teachers working with pupils with chronic illnesses within the Turkish education system.

2 Methodology

2.1 Study group

The study group of this research consisted of 104 primary school teachers selected using the convenience sampling method. The decision to select only primary school teachers for the sample was driven by their significantly greater one-on-one interaction time with children compared to teachers at other educational levels, as well as the heightened need for teacher support due to the developmental characteristics of primary school-aged children. The primary school phase is a critical period during which pupils acquire foundational academic skills and establish the basis for social adaptation. Consequently, the support provided by teachers to pupils with chronic illnesses during this stage can be decisive for their educational success and social development. Thus, testing the Turkish adaptation of the "Short scale on self-efficacy expectations of student teachers in dealing with chronically ill pupils" [K-ÖZET] on primary school teachers ensured its evaluation within a context aligned with its target population.

The demographic characteristics of the participants are summarized in Table 1. The sample size was determined based on current criteria recommended for factor analysis regarding the minimum number of participants (Costello & Osborne, 2005; Hair et al., 2019). As detailed in the findings section, statistical analyses confirmed that a sample of 104 participants was sufficient for validity and reliability assessments.

Table 1

Demographic characteristics of the study group

Variable	*Category*	*Percentage (%)*	*Frequency (n)*
Gender	Female	69.2	72
	Male	30.8	32
Professional Experience	1-5 years	28.8	30
	6-10 years	20.2	21
	11-15years	14.4	15
	16+ years	36.5	38
Education Level	Bachelor's Degree	80.8	84
	Master's Degree	17.3	18
	PhD	01.9	2

As shown in Table 1, the majority of the participants were female (69.2%) and held a bachelor's degree (80.8%). Participants had a wide range of professional experience, with 36.5% having over 16 years of teaching experience, suggesting a sample with substantial classroom expertise.

2.2 Instrument

The "Short scale on self-efficacy expectations of student teachers in dealing with chronically ill pupils" (original German abbreviation: SUmeS; Kohlwage, 2025) is designed to assess teachers' self-efficacy in supporting pupils with chronic illnesses. The original German version of the scale comprised 9 items distributed across two dimensions: Social Aspects (6 items) and Medical Action (3 items) (see Appendix 1 for the full German version of the items and their English equivalents). It employs a 7-point Likert-type format (1 = Strongly Disagree to 7 = Strongly Agree). The definition of chronic illness from page 3 was inserted at the beginning of the scale to ensure a uniform understanding of the term among the respondents.

The internal consistency coefficients reported by the author were α=.75-.81 for Social Aspects and α=.78-.84 for Medical Action. The two-factor model accounted for 52.4% of the total variance, and confirmatory factor analysis showed good model fit (CFI=.94-.98; TLI=.92-.97; RMSEA=.054-.074; SRMR=.047-.055). For the Turkish adaptation conducted in this study, one item - "In emergency situations, I am able to administer insulin to a child with diabetes until the emergency doctor arrives" (German: "Ich würde einem Kind mit Diabetes, das wegen einer Unterzuckerung bewusstlos ist, eine Glukagonspritze verabreichen"; Turkish: "Acil bir durumda diyabetli bir çocuğa acil yardım doktoru gelene kadar insülin iğnesi yapabilirim") - originally excluded from the Medical Action factor was reinstated. This fourth item, despite its acceptable EFA and reliability performance, had been removed in the original German version due to suboptimal CFA fit. Its inclusion in the Turkish version was based on theoretical relevance and good psychometric performance in the adaptation sample. As a result, the Turkish version of the scale consists of 10 items (6 in Social Aspects and 4 in Medical Action).

2.3 Procedure

The adaptation process of the Turkish adaptation of the „Short scale on self-efficacy expectations of student teachers in dealing with chronically Iill pupils" [Öğretmen Adaylarının Kronik Hastalığı Olan Öğrencilerle Başa Çıkma Sürecine Yönelik Özyeterlik Ölçeği- K-ÖZET], into Turkish began by contacting the original author, E. Kohlwage, via email. Permission for adapting the scale within the context of primary school teachers was obtained from Kohlwage, along with her opinion on its suitability, and the adaptation process was conducted in collaboration with the author. The adaptation process followed the eight-step procedure outlined by Şeker and Gençdoğan (2006):

Step One: The original German version of the scale was translated into Turkish by three independent experts.

Step Two: These translations were evaluated by the researcher and three primary school teachers, and the Turkish form was revised based on their suggestions. The revised Turkish form and the original German form were then reviewed by two field education experts, and the Turkish form was further refined.
Step Three: The Turkish form was back-translated into German by an expert proficient in advanced German.
Step Four: The back-translated German form was compared with the original form by a field education expert, and the Turkish translation was finalized.
Step Five: The Turkish form was administered as a pilot test to 20 primary school teachers via an online platform.
Step Six: Correlation coefficients between the scores obtained from the pilot application were analyzed.
Step Seven: Interviews were conducted with two primary school teachers to assess the face validity of the scale, and adjustments were made to the Turkish form based on their feedback. The revised form was then reviewed and approved for linguistic appropriateness by two faculty members specializing in the Turkish language.
Step Eight: The final version of the scale was prepared for online administration in accordance with ethical principles.
Throughout the adaptation process, strict adherence to ethical principles governing research involving human participants was maintained (APA, 2017). The scale items were designed to avoid causing psychological harm to participants, and during the online administration, measures were taken to ensure that participants did not feel pressured and could provide independent responses. Furthermore, in line with the ethical principle that the original name of a scale should be retained in adaptations (Byrne, 2016), the name [K-ÖZET] was preserved unchanged. The instructions of the online data collection tool and verbal explanations provided during the administration explicitly stated that participation was voluntary, responses would have no positive or negative consequences, personal information would be used solely for research purposes, and confidentiality would be ensured. No identifying information, such as names, was requested from participants.
Current literature highlights the importance of ethical standards and translation validity in scale adaptation processes. For instance, Hambleton and Zenisky (2011) emphasize that, in addition to linguistic equivalence, contextual appropriateness must also be ensured in cultural adaptations. Accordingly, the adaptation of the "Short scale on self-efficacy expectations of student teachers in dealing with chronically ill pupils" [K-ÖZET] into Turkish was approached with meticulous attention to both linguistic and cultural dimensions.

2.4 Data analysis

The data analysis commenced with exploratory factor analysis (EFA) to establish the construct validity of the scale. Prior to EFA, the suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's Test of Sphericity. In the EFA, the rotated principal components analysis method was employed to determine the factor structure, and the Scree Plot was examined. The factor structure obtained from this analysis was subsequently tested using confirmatory factor analysis (CFA). In this process, the relationships between items and factors, as well as the connections between the factors, were examined. The model fit was evaluated using fit indices such as χ^2/df, TLI, CFI, SRMR, and RMSEA.

Internal consistency coefficients for the scale's factors were calculated using Cronbach's α. To assess convergent validity, average variance extracted (AVE) values were computed. Item-total correlations were calculated to evaluate each item's ability to measure its intended construct and the reliability of the dimensions identified by CFA. The relationship between the factors was assessed using the Pearson Product-Moment Correlation Coefficient.

These analyses are substantiated by statistical results detailed in the findings section. All analyses were performed using the jamovi software.

3 Findings

3.1 Findings related to exploratory factor analysis (EFA)

Prior to conducting exploratory factor analysis (EFA), the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's Test of Sphericity were examined to assess the suitability of the data for factor analysis. In this study, the KMO sample adequacy coefficient was calculated as 0.79, indicating that the dataset was moderately to highly suitable for factor analysis. Bartlett's Test of Sphericity yielded significant results ($\chi^2(45)=391.20$, $p<.001$). Both findings confirm the appropriateness of the data for factor analysis (Büyüköztürk, 2008). Considering that the original form of the scale grouped items under two factors, EFA was conducted within a two-factor framework. The lower limit for factor loadings was set at 0.30, and the analysis revealed no items with factor loadings below this threshold. Cronbach's α coefficients were calculated to evaluate the internal consistency of the items, and no item was found to directly compromise the scale's reliability. The EFA results indicated no items exhibiting cross-loading between factors. Additionally, examination of the Scree Plot presented in Figure 1 confirmed the presence of two factors with eigenvalues greater than one. Based on these findings, it was concluded that the scale possesses a two-factor structure.

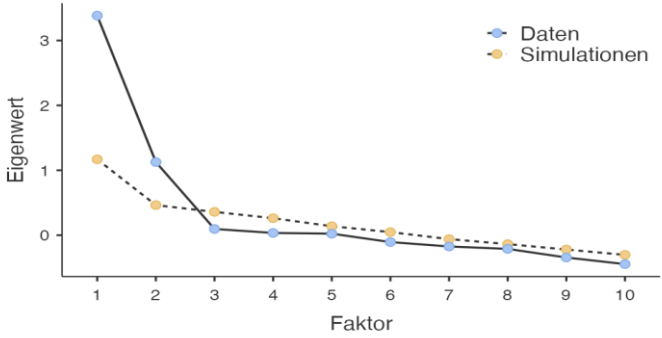


Figure 1. Scree plot graph of exploratory factor analysis.

Exploratory factor analysis (EFA) results support the two-factor structure of the scale (Table 2). Factor 1 (Social Aspects), represented by items M1 to M6, exhibits factor loadings ranging from 0.346 (M6) to 0.815 (M1). The factor loading of M6 (0.346) remained above the predetermined threshold of 0.30 and given that ADHD management is considered critical to the scale's scope, this item was retained. Factor 2 (Medical Action), defined by items M7 to M10, showed loadings ranging from 0.531 (M9) to 0.919 (M8), indicating a consistent structure. Factor 1 accounted for 26.7% of the variance, and Factor 2 accounted for 22.3%, together explaining 49.1% of the total variance.

Table 2

Exploratory factor analysis results for the scale

Item number	*Items*	*Factor 1 Social aspects [Sosyal Boyut]*	*Factor 2 Medical action [Tıbbi Eylem]*
1	Günlük okul yaşantısı içinde öğrencilerin birbirlerini desteklemelerini ve önemsemelerini teşvik edebileceğimden eminim.	0.815	
2	Sınıf iklimini, hasta ve sağlıklı çocukların kendilerini sınıftaki öğrenciler tarafından kabul edilmiş hissedecekleri şekilde oluşturmayı başarabilirim.	0.785	
3	Kronik hastalığı olan çocuklarla çalışırken meslektaşlarımla iyi çalışabileceğimden eminim.	0.778	
4	Zor durumlarda bile hasta öğrencilerin ebeveynleriyle iyi iletişim kurabileceğimi düşünüyorum.	0.647	
5	Zor durumlarda bile kronik hastalığı olan öğrencilerle	0.566	

	iyi iletişim kurabileceğimi düşünüyorum.		
6	DEHB (Dikkat Eksikliği ve Hiperaktivite Bozukluğu) olan öğrencilere, onlardan ne tür davranışlar beklediğimi net bir şekilde ifade edebilirim.	0.346	
7	Bilinç kaybı veya astım krizi gibi tıbbi bir acil durumda bile, bu durumla başa çıkabileceğime inanıyorum.		0.584
8	Astımlı bir çocuğa nefes egzersizlerini öğretecek bilgiye ve güvene sahibim.		0.919
9	Günlük okul yaşantısı içinde tablet, merhem, ilaç ve enjeksiyon gibi tıbbi yardımları sağlayabileceğim konusunda kendime güveniyorum.		0.531
10	Acil bir durumda diyabetli bir çocuğa acil yardım doktoru gelene kadar insülin iğnesi yapabilirim.		0.685
Variance Explained (%) Total= 49.1		*% 26.7*	*% 22.3*

3.2 Findings related to confirmatory factor analysis (CFA)

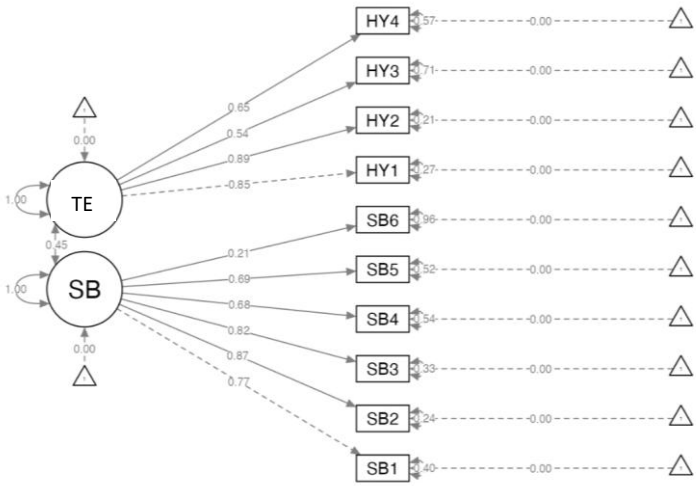
Confirmatory factor analysis (CFA), which aims to assess the extent to which a predefined structure is supported by the collected data (Büyüköztürk et al., 2004), was conducted to analyze the two-factor structure obtained from the EFA. The appropriateness of the factor structure was evaluated based on fit statistics and modification index results. The fit indices calculated for the Turkish version of [K-ÖZET] through CFA are presented in Table 3.

Table 3

Confirmatory factor analysis fit indices

CFA Fit Index		*Study Findings*
Chi-Square to Degrees of Freedom Ratio	$\chi 2/sd$	51.4/34=1.51
Tucker-Lewis Index	TLI	0.93
Comparative Fit Index	CFI	0.95
Standardized Root Mean Square Residual	SRMR	0.06
Root Mean Square Error of Approximation	RMSEA	0.07
RMSEA 90% Confidence Interval	(Top-down)	0.02-010

Confirmatory factor analysis (CFA) results indicate that the model exhibits an acceptable fit to the data. The χ^2/sd ratio, calculated as 51.4/34=1.51, is below 3, suggesting good model fit, while the GFI (0.9), AGFI (0.83), and SRMR (0.06) values further support the model's adequacy. The RMSEA value was computed as 0.07, falling below the acceptable fit threshold of <0.08 proposed by Browne and Cudeck (1993). The 90% confidence interval of [0.02, 0.1] indicates that the model lies between close fit and fair fit. These results confirm the two-factor structure of the Turkish version of [K-ÖZET]. The path diagram representing the scale's factor structure is presented in Figure 2. The low loading of M6 (0.346) visually confirms its partial divergence from the Social Aspects factor.



TE: Tıbbı Evlem. SB: Sosval Bovut

Figure 2. Path diagram of confirmatory factor analysis for [K-ÖZET].

3.3 Findings related to reliability

To evaluate the internal reliability of [K-ÖZET], Cronbach's alpha coefficients were calculated, yielding α=0.8 for the Social Aspects, α=0.78 for Medical Action, and α=0.79 for the overall scale. These values indicate that the scale demonstrates high internal consistency across both factors and as a whole (Nunnally & Bernstein, 1994). The results of the convergent validity analysis are presented in Table 4.

Table 4

Convergent validity analysis results

Factors	*AVE*	*Item Number*	*Item-Total Correlation*	*Cronbach's α*
Social Aspects [Sosyal Boyut]	0.503	1	0.77	0.80
		2	0.76	
		3	0.77	
		4	0.78	
		5	0.77	
		6	0.81	
Medical Action [Tıbbi Eylem]	0.560	7	0.76	0.78
		8	0.76	
		9	0.78	
		10	0.79	

The average variance extracted (AVE) values, computed to assess convergent validity, were 0.503 for the Social Aspects and 0.560 for Medical Action. Both factors exceeded the AVE>0.50 threshold, confirming convergent validity (Büyüköztürk, 2008). Item-total correlations ranged between 0.76 and 0.81, verifying that all items consistently measured their respective factors.

3.4 Findings related to inter-factor relationships

Descriptive statistics for the factors revealed a mean of 34.2 (SD=5.43) for the Social Aspects and 17.01 (SD=5.65) for Medical Action. These values represent total sum scores across the respective items of each factor. The means, standard deviations, and correlation coefficients for the two identified factors of the scale are provided in Table 5.

Table 5

Descriptive statistics of factors and correlations between factors

Factors			*Correlation* *	
	X	*SS*	*1*	*2*
1 Social Aspects [Sosyal Boyut]	34.2	5.43	-	.325
2 Medical Action [Tıbbi Eylem]	17.01	5.65		-

As shown in Table 5, a positive and significant correlation was detected between the two factors (r=.325, p<.001). This finding supports the notion that the Social Aspects and Medical Action subscales of [K-ÖZET] are related yet measure distinct constructs. The low-to-moderate correlation suggests that the factors overlap to some extent but remain separable components.

Collectively, these findings substantiate that [K-ÖZET] is a valid and reliable instrument suitable for assessing self-efficacy expectations toward pupils with chronic illnesses.

4 Discussion and conclusion

Schools play a critical role in shaping society by facilitating pupils' adaptation to the community, enabling them to acquire new behaviors and develop social and affective skills (Adıgüzel et al., 2016). Among these functions, supporting the educational processes of all pupils and ensuring that none are left behind stand out as paramount. However, pupils with chronic illnesses often face challenges in attending school regularly or focusing adequately on lessons due to their health conditions. This situation underscores the importance of teachers' self-efficacy expectations in managing chronic illnesses, as teachers hold a pivotal role in facilitating these pupils' participation in the educational process.

In this context, the present study examined the validity and reliability of the Turkish version of [K-ÖZET] using a sample of 104 Turkish primary school teachers. Exploratory factor analysis (EFA) results confirmed that the scale retained its two-factor structure. However, the item "I can clearly communicate my expectations of behaviour to pupils with ADHD" (Attention Deficit Hyperactivity Disorder - DEHB (Dikkat Eksikliği ve Hiperaktivite Bozukluğu) olan öğrencilere, onlardan ne tür davranışlar beklediğimi net bir şekilde ifade edebilirim] yielded a factor loading of 0.346, just above the predetermined threshold of 0.30. As ADHD management necessitates classroom social regulation and the item's factor loading remained above the threshold, it was retained within the "Social Aspects" factor. Furthermore, the Scree Plot analysis corroborated the two-factor structure, ensuring fidelity to the original scale and the retention of all 10 items in the Turkish adaptation. Confirmatory factor analysis (CFA) results further demonstrated that the model exhibited an acceptable fit to the data. The calculated fit indices, when compared to the threshold values proposed by Browne and Cudeck (1993), indicate a fit level ranging from moderate to good. Moreover, the path diagram results corroborated the statistical significance and reliability of the scale's two-factor structure.

Regarding the scale's reliability, the Cronbach's α values calculated for the total score and its subscales, when compared to established benchmarks in the literature (Nunnally & Bernstein, 1994), revealed a high level of reliability. Notably, the high internal consistency of the Social Aspects factor reflects teachers' confidence in providing social support to pupils with chronic illnesses, a finding aligned with literature emphasizing the relationship between self-efficacy expectations and social skills (e.g., Bandura, 1997). In terms of convergent validity, the average variance extracted (AVE) values for both factors (Social Aspects: 0.503; Medical Action: 0.560) exceeded the 0.50 threshold,

confirming the scale's convergent validity. Although the original German version of the scale excluded one item from the Medical Action factor due to borderline model fit in CFA, this item was retained in the Turkish adaptation. Interestingly, the item "In emergency situations, I am able to administer insulin to a child with diabetes until the emergency doctor arrives" showed satisfactory psychometric performance within the Turkish sample and did not impair model fit. One possible explanation is that while the original version was developed with pre-service teachers, the Turkish adaptation was tested on in-service primary school teachers. This difference in sample characteristics may have contributed to stronger alignment with real-life responsibilities and perceptions regarding medical interventions in emergency situations.

In future, the scale can be validated on further, larger and more heterogeneous samples of teachers and student teachers. Translations into other languages would also be useful in the future, as a corresponding scale is currently lacking in many languages.

The short scale can serve as an effective tool in research aimed at evaluating teachers' and teacher candidates' self-efficacy expectations regarding pupils with chronic illnesses. Through this scale, the relationships between medical actions and social engagement with pupils can be explored. In this regard, the Turkish adaptation of [K-ÖZET] offers a reliable and valid measurement tool that can contribute to the development of policies and practices aimed at supporting pupils with chronic illnesses within the education system.

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Appendix *Original German version of the "Short scale on self-efficacy expectations of teachers in dealing with chronically ill pupils" with English translations*

Factor	Item
Soziale Aspekte (Social Aspects)	Ich bin zuversichtlich, die Schüler*innen zur gegenseitigen Unterstützung und Rücksichtnahme im Schulalltag anregen zu können. (I am confident that I can encourage the pupils to support and consider each other in everyday school life.)
	Ich kann es schaffen, das Klassenklima so zu beeinflussen, dass sich erkrankte und gesunde Kinder darin angenommen fühlen. (I can manage to influence the classroom climate in such a way that ill and healthy children feel accepted.)
	Ich bin mir sicher, dass ich bei der Arbeit mit chronisch erkrankten Kindern mit meinen Kolleg*innen gut zusammenarbeiten kann. (I am sure that I can work well with my colleagues when working with chronically ill children.)
	Ich weiß, dass ich zu den Eltern erkrankter Schüler*innen guten Kontakt halten kann, selbst in schwierigen Situationen. (I know that I can maintain good contact with the parents of ill pupils, even in difficult situations.)
	Ich weiß, dass ich es schaffe, mit chronisch erkrankten Schüler*innen guten Kontakt aufzubauen, auch in schwierigen Situationen. (I know that I can establish good contact with chronically ill pupils, even in difficult situations.)
	Ich kann an ADHS erkrankten Schüler*innen meine Erwartungen an ihr Verhalten klar vermitteln. (I can clearly communicate my expectations of behavior to pupils with ADHD.)
Medizinisches Handeln (Medical Action)	Auch bei einem medizinischen Notfall (z. B. Bewusstlosigkeit, Asthmaanfall) glaube ich, dass ich gut zurechtkomme. (Even in a medical emergency (e.g. unconsciousness, asthma attack), I think I can cope well.)
	Ich traue mir zu, ein asthmatisches Kind zu atmungserleichternden Übungen anzuleiten. (I have the confidence to instruct an asthmatic child in breathing exercises.)
	Ich traue mir zu, medizinische Hilfsmaßnahmen (Gabe von Tabletten, Salben, Sprays, Spritzen) im Schulalltag durchzuführen. (I have the confidence to carry out medical aid measures (administration of tablets, ointments, sprays, injections) in everyday school life.)